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Influence of System Operational Efficiency on Revenue Collection in Kenya: A Case of Malaba Border Customs Office

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Abstract

The revenue structures of most African countries have not been as productive as desired. In Kenya, KRA has been restructuring its operations by introducing different customs enforcement measure. Therefore, this study sets out to determine the influence of system operational efficiency in revenue collection in Kenya: a case of Malaba border customs office. The objectives that guided this study included: To determine the extent to which accountability in system operational efficiency influences revenue collection at Malaba Border. To identify the influence of work flow in system operational efficiency in revenue collection at Malaba border. To determine the influence of ease of doing business in system operational efficiency in revenue collection at Malaba Border, Kenya. The study adopted a descriptive survey design that was carried out at Malaba border customs office. The study sample size consisted of 1 Head Verification 0fficer, 2 Verification Officers, 39 Border Control Officers and 60 Clearing Agents. The instruments of data collection were: Questionnaires, Interviews, observation schedules and document analysis. Reliability of the instruments was determined by piloting the instrument and validity was enhanced by requesting the lecturers of KESRA College to examine content validity. Data from the field was subjected to descriptive statistics and analyzed using SPSS and was presented using tables of mean, frequencies and percentages. The Study concluded that the accountability of customs systems, work flow and ease of doing business is influenced positively by embracing system operational efficiency in revenue collection at Malaba Border. Based on the findings this study recommended a need for a continuous upgrading of the systems, in line with prevailing technology. Bearing in mind that this study focused on Malaba Border, the study suggests that a further research should be carried out in other borders.

Keywords: Kenya Revenue Authority, system operational efficiency

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1. Background

Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on government operations. Customs should comply with best practices of equity, ability to pay, economic efficiency, convenience and certainty as explained by (Visser & Erasmus, 2015). For any government to match in performance with the growth and expectations of its citizens, it needs to increase its fiscal depth without incurring costly recurring overheads (Gidisu, 2012).

There is an increasing need by the government to collect much revenue by way of taxes to face the increasing financial expenditures budgeted by the country. In developed countries Like USA, automated systems have been proven to be capable of introducing massive efficiencies to business processes that can result in increased revenue collections (Zhou & Madhikeni 2013). According to De Wulf and Sokol, (2014), application of technological solutions towards the strategic goals for government is a key step towards transforming government into an entity that can keep abreast of the needs, requirements and expectations of today's modern world.

Electronic custom management applications firstly started in the USA, and then spread in other developed and developing countries. Factors such as information and communication technologies which develop rapidly together with the process of globalization, gain strength and decrease costs hence, increasing information sharing have extended the electronic tax management applications all over the world De Wulf & Sokol,(2005).

According to Thirsk (2011), not only should a government avoid raising taxes on the poor, but should also reduce their tax burden by avoiding tax incentives and shifting to broader, simpler custom bases on which lower rates are applied. According to World Bank, (2010), the main elements of a reform programmes should include imposing a small number of taxes with the broadest possible base and moderate rates which is easily achieved using VAT to replace commodity taxes in order to minimize disincentives for investments and exports.

Public revenue collection is an integral component of fiscal policy and administration for it is the main instrument through which government funding is ensured. Tax revenue collection should comply with best practices of equity, ability to pay, economic efficiency, convenience and certainty. For any organization to match in performance with the growth and expectations of its clients, it needs to increase its fiscal depth without incurring costly recurring overheads (Gidisu, 2012).

Application of technological solutions towards the strategic goals for government is a key step towards transforming government into an entity that can keep abreast of the needs, requirements and expectations of today's modern world. Thus, Zhou & Madhikeni, (2013), argues that automated systems are capable of introducing massive efficiencies to business processes that can result in increased revenue collections. Automation of revenue collection system involves investing in modern technologies for example: ICT in order to upgrade the revenue system to achieve integration and information sharing so as to enhance efficiency and effectiveness of the system.

All Sectors of the Country should put in place an effective and efficient revenue collection system in monitoring framework that ensures adequate supervision of the budgeted programs and project activities to enhance accountability and absorption of resources (Amin, 2013).

Osoro, (2013), argues that the revenue structures of most African countries have not been as productive as desired, for instance, Ghana and South Africa, too often their revenue growth has failed to catch up with government spending pressures, a situation that has occasioned huge imbalances between the demand and supply of public budgetary resources. These countries have then had to reform their tax structures, with the general objectives of revenue adequacy, economic efficiency, equity and fairness, and simplicity. WTO and its commitments to the COMESA, in response to the formation of the East African Community (EAC) Customs Union and to the pressure of the private sector, the government of Kenya has begun a wide range of reforms in its trade processes (Suluo, 2013).

According to Amin (2013), local governments are a level of government below the central government (second-tier) in the case where the state is unitary, or below the regional, provincial or state government in the case of a federation (third-tier). The Constitution of Kenya 2010 introduces a two tier system, national and county governments, which mandates the county governments to provide a range of services as set out by law to its constituents. It empowers them to legally enforce their executive and regulatory decisions on their citizens. by defining the area of authority and basis for representation hence to the extent of having their own staff and revenue (Kamolo, 2014).

According to Victor, (2014), many of the second-tier governments have been faced with an impossible situation where their entire revenues have not been enough to meet their budgetary needs. Manyasi, (2012), observed that, Kenya is a case in point in regard to maximization of revenue collection, reflected in inadequacy in achieving the objectives of self-reliance and structural transformation of the rural environment. Ironically he further adds that, although there are many revenue avenues, there are some aspects of local revenue administration which are not fully operationalized.

A baseline survey on devolution carried out by Institute of Certified Public Accountants in Kenya (ICPAK,2014),

revealed that several counties are generating less revenue than what the defunct local authorities that lay within their boundaries raked in collectively; raising concerns on the capacity of the devolved units in raising own revenue. According to the report titled 'Public Finance Building Blocks for Devolution', the counties have weak revenue bases, lack internal audits, have poorly trained personnel, use manual revenue collection systems and some county revenue officers are reluctance to embrace change, and this has impacted negatively on revenue collection within the counties (Amin, 2013).

In a move to create a transparent data base so as to track payments real-time, improve efficiency, reduce cash transactions as well as ensure there are no leakages in the revenue systems; the Meru County government has been planning to step up revenue collection by phasing out the manual collection system to pave the way for a fully automated one. All which is geared towards improving its revenue base (Amin, 2013).

The Kenya Revenue Authority initiated market type reforms called the Revenue Administration Reform and Modernization Program (RARMP) which commenced in 2004/05 with the objective of transforming KRA into a modern, fully integrated and client-focused organization. The Customs Reform and Modernization aimed at enhancing service delivery in Customs Service Department in its efforts to meet its obligations as a founding member.

Odundo (2007), carried out a research on change management practices adopted by Kenya Revenue Authority (KRA) in its reform and modernization program, found out that although still underperforming, Kenya improved its Trading across Borders ranking by nine places in 2006, moving from 154 to 145. These changes are only the beginning of what is possible with these progressive reforms. Although many scholars have carried out studies on KRA, it is important to note that contextually, there have been limited studies on the influence of customs reforms on performance of Kenya Revenue Authority.

A study by Haoro (2012), on Challenges of Online service in KRA, concluded that, given the emerging technology in the service delivery at KRA, a further study should be carried out on the role of online Services and operational performance which opens the gap for the current study to fill in, hence, the researcher in this study sought to establish the influence of system operational efficiency in revenue collection in Kenya: a case of Malaba border customs office.

1.2 Statement of the Problem

A good system ought to efficiently link an organization to suppliers, distribution channels, or customers. It ought to use information or processing capabilities in one area in order to improve the performance of another. System operational efficiency is mostly used as a competitive weapon, but there is still a lack of understanding of the issues that are likely to determine the influence of information technology on a particular organization and the processes that will allow a smooth coordination of technology and corporate strategy. In as much as many organizations understand the potential impact of system operational efficiency on the organizations competitive positions, others fail to consider strategy implications when selecting a system. For this to be realized it is important to determine the operational efficiency of any system. Despite the importance of customs reforms and modernization programme there is dearth empirical evidence on the effects of customs reforms and modernization programme on revenue performance in Kenya. Although many scholars have carried out studies on KRA, it is however worth noting that contextually, Owing to the importance that KRA plays in the state agencies, it remains undocumented in literature the relationship between the key variables hence the gaps that the present study sets to address by analyzing the influence of system operational efficiency in revenue collection at Kenya Revenue Authority: a case of Malaba border customs office.

1.3 Objectives

1.3.1 General Objective

This study set out to determine the influence of system operational efficiency in revenue collection at Kenya Revenue Authority: a case of Malaba border customs office.

1.3.2 Specific Objectives

This study was guided by the following objectives;

i. To determine the extent to which accountability on system operational efficiency influences revenue collection at Malaba Border.

ii. To identify the influence of work flow in system operational efficiency on revenue collection at Malaba Border.

iii. To determine the influence of ease of doing business in system operational efficiency on revenue collection at Malaba Border.

1.4 Research Questions

This study aimed to answer the following research questions;

i. To what extent does accountability in system operational efficiency influence revenue collection at Malaba Border?

ii. What is the influence of work flow in system operational efficiency influence revenue collection at Malaba Border?

iii. How does ease of doing business in system operational efficiency influence revenue collection at Malaba Border?

1.5 Justification

This study may be invaluable to a number of stakeholders. First, the management of Kenya Revenue Authority may find it useful as a point of reference as far as assisting in decision making regarding the influence of reforms on revenue

performance. If the recommendations of this study are put into practice by the relevant authorizes, the country stands to benefit a great deal from an improved tax reforms in terms of instituting better reforms for better revenue performance.

The students, researchers, policy makers, scholars and the academicians will find this study a useful guide in as far as further discussions or studies on the same are concerned. It may therefore form a basis of further research from interested individuals on the subject of reforms and revenue performance.

1.6 Scope

The study focused on the effect of system operational efficiency in revenue collection at Kenya Revenue Authority: a case of Malaba border customs office. This is the conceptual scope. The contextual scope included, consisted of; 1 Head Verification Officer, 2 Verification Officer, 39 Border Control Officers and 60 Clearing Agents.

1.7 Limitations

The study was confined to KRA office, Malaba customs office, time and budgetary constraints did not allow the researcher to carry out an extensive and exhaustive research. Staff in KRA was a bit hesitant with provision of information that was required. Nevertheless the researcher assured them that the information was to be used for academic purposes only.

2. Literature Review

The chapter focused on the theoretical review and the frameworks that were used to explain the Influence of System Operational Efficiency in Revenue Collection at Kenya Revenue Authority, Malaba Border, Kenya, as well as the empirical studies that have been tackled on the area in both the public and private sector. This was followed by a summary of the review of literature and the gaps filled by this study.

2.2 Theoretical review

This study was guided by performance theory by Don Elger (2002), Theory of Accountability by Lener and Tetlock (1999) and Resource-Based Theory by Barney (1991).

2.2.1 Theory of Performance

The theory of Performance by Don Elger, (2002), suggests that performance is directly linked to six foundational concepts which are intertwined together to form a framework that can be used to explain performance and improvement of performance. Developing performance is a journey whose location is enumerated by the level of performance. It entails Production of valued results by an individual, a system or a group of individuals engaging in a collaborative effort. The level of performance entirely depends on various components like the level of skills, level of identity, level of knowledge, personal and fixed factors.

However for performance to be enhanced it depends on the performers mindset, engagement in reflective practice, immersion and enriching environment Performance, as the adage goes, is a "journey not a destination." The location in the journey is labeled as "level of performance." Each level characterizes the effectiveness or quality of a performance. For instance, as a manager advances his level of performances, he is able to organize people and resources more effectively and to get higher quality results in a shorter time. This theory is important in this study of the influence of System Operational Efficiency a Case of Malaba Border. Bransford et. al., (2000) posits that, efficiency in a system due to good performance leads to an increase in quality whereby results or products are more effective in meeting or exceeding the expectations of stakeholders.

There is also a decrease in cost whereby the amount of effort and financial resources to realize results is greatly minimized .The capability increases: this entails the ability to deal with more forthcoming challenging projects. The capacity and ability to generate more throughout, equally increases: the depth and breadth of knowledge increases, and the ability to set goals, persist and maintain a positive outlook in effectiveness The Identity and motivation increases for employees and they in the long run develop more sense of who they are as professionals; organizations develop their essence.

The performance of any given system, for example is entirely, dependent on the components of the system and on the interactions between these components. Conditions for optimal performance and improvements in performance can be synthesized in three: engagement of the performer in an optimal emotional state: performer's mindset. : immerse the performer in an enriching environment. : engage the performer in reflective practice. Bransford et. al's (2000) This is reflected in the component of the ease of doing business as reflected in the study.

2.2.2 Accountability Theory

This theory was originally developed by Lener and Tetlock (1999) and proposes that there's a perceived need to justify accountability in a system so as to achieve efficiency. Further Vance, Lorry and Egget (2015) posits that there is a willingness to accept responsibility through several mechanisms that can enhance accountability perception towards the efficiency of the system. The theory is relevant to the current study in the way it explains how there's a perceived need to justify accountability in a system so as to achieve efficiency.

According to Vance, Lorry and Egget (2015) the theory further shows that systems can manipulate the four core components of accountability thus improving their employee's efficiency towards organizational systems. This is reflected in the study in the way the system is identifiable when output is linked to an employ,: expectations of evaluation which posits that performance of a system is assessed by another party according to some normative ground rules set with implied consequences,: and lastly awareness of monitoring which is reflected in the state of monitoring of the systems related work.

Therefore performance will be assessed according to normative ground rules. This is relevant to the study as the study sought to determine the extent to which accountability on system operational efficiency influences revenue collection

2.2.3 Resource –Based Theory

The theory was developed by Barney (1991). It states that possession of resources for an organization is important, as it is difficult to imitate, rare and cannot be substituted. Organizations ought to assess their organizational processes keenly in order to establish competitive advantage through the use of their resources. This theory is relevant to the study as it outlines the importance of having efficient resources in this case reforms enacted by customs in both the information technology sector and other sectors which all bring about a common good for the institution.

Competitive advantage refers to the advantage a firm has over its competitors which can only be enhanced based on the resources the form possess. Customs as an organization has continually sought to be positioned strategically based on its resources and capabilities in addition to products and services.

Lee, A. (2013) posits that executives who envisage achieving long-term competitive advantages ought to place a premium on trying to nurture and develop their firms' intangible resources. Capabilities are what the organization can do based on the resources it possesses. They often tend to arise or expand over time as a firm takes actions that build on its strategic resources. They are important because they are how organizations capture the potential value that resources offer. Earning positive returns on the value that your resources originate depend on its sustainability and appropriability. According to RBV proponents, exploiting external opportunities is much more realistic using existing resources in a new ways rather than trying to acquire new skills for each different opportunity..

2.3 Conceptual Framework

Conceptual framework is a presentation on how the independent and dependent variables are related. The study was guided by the following conceptual framework, which was used to explain the interrelationship between the variables. According to Oso & Onen (2002), Independent variables attempt to indicate the total influence in the study. In the study of the the Influence of System Operational Efficiency on Revenue Collection output at Malaba Customs office, depended on what was measured through indicators such as: the indicators of the influence of system Operational Efficiency on : Accountability of the System, Ease of doing Business and Workflow. The study presumed that there exist a relationship between these variables which the study intents to explore as summarized in Figure 2.1 below.

Figure 2.1: Conceptual Framework

2.4 Empirical Review

This section reviewed literature on the main variables of the study which includes; customs services department, Accountability, Ease of doing business, Work Flow and customs service business automation as discussed herein.

2.4.1 Accountability in System Operational Efficiency and Revenue Collection

The automation of customs procedures is an integral part of reform and modernization efforts, as automated systems are one of the main integrity controls within customs administration. By facilitating audits and reviews of decisions by customs officials, automation of a wide range of processes can be used to increase transparency and accountability in customs administrations. The use of automated systems is also often designed to gather necessary information in such a way so as to provide for a one-time, single window submission of electronic data that minimizes face-to-face interactions between customs officials and clients, and thus minimize the opportunity for the inappropriate exercise of official discretion (OECD/WTO, 2016).

According to Michael, B. (2012) Automated systems are also increasingly used to manage integrity and corruption risk effectively. They can be used by customs officials to track the movement of goods in real time, and to record a large of data that allow for the development of trends that may be indicative of corruption or other integrity issues. Computerized systems also use elaborated algorithms based on a wide range of variables to determine shipments involving higher integrity risks.

The implementation of appropriate accountability mechanisms, governance structures and integrity policies in customs administration has the potential of reducing trade costs these measures often seek to seek to eliminate numerous schemes allowing for avoidance of customs and tariffs such as underreporting of exports and over-invoicing of imports. Reinforcing these measures helps curb the obstacles for cross border trade (OECD/WTO, 2015).

Accountability of customs systems operations always ensures the increase of effectiveness and establishes a dedicated unit for assessing policy effectiveness, conducting ongoing performance reviews, and making good use of automated systems to enhance effectiveness and internal controls. Simplifying customs procedures Increases predictability and accountability in customs procedures, including through large public awareness campaigns of main customs rules, procedures and tariffs; appropriate guidance of discretionary powers; and guaranteeing the security and confidentiality of commercial and personal information of customs users; Promoting effective whistleblower communication channels to enhance internal audits(OECD/WTO, 2009).

The Brazilian and Italian system operational efficiency experiences show that Accountability structures and controls in customs system helps to highlight the importance of Integrity in Customs Allowing for effective communications channels with the private sector to proactively address

emerging issues. , Brazils creation of the Ethics Committee and of the internal audit unit as a positive signal from customs administration leaders towards ethics and integrity. By reducing information asymmetries, enhancing the enforceability and accountability of regulations, increased integrity in customs provide firms with greater confidence that they will receive fair and consistent treatment from public officials and therefore, that they will be able to compete on equal grounds in foreign markets, Michael, B. (2012).

Certain customs procedures cannot be fully automated and therefore require human intervention A good example is the Cargo examination by customs, Most countries provide a number of additional controls seeking to make individuals who replace automated procedures accountable. Customs administrations from China, India, Mexico, South Africa and the United Kingdom advertise their whistleblower hotlines to the public on an ongoing basis as part of their strategy to showcase their commitment to address wrongdoing within customs. Canada's CBSA underscores the priority given to enforcement by disclosing the professional standards on investigations Bowers, J., M. Fodder et al. (2012).

Being a fully integrated IT –system for customs clearance , Germany's Atlas automated system is designed with targeted checks and controls that are carried out throughout the clearance processes. They include tailored checks and balances that assess the credibility of customs declarations and that can be used to systematically single out integrity breaches, such as under-invoicing. Declarations processed through the system are subject to a comprehensive automated risk assessment, whereby declarations that do not meet risk parameters are further scrutinized for more in-depth controls. Declarations that do not meet pre-identified risk parameters all have to be documented in the system, including when no specific additional measures were taken. The credibility and accuracy of customs declarations can also be checked in real-time by using interfaces that are connected to other authorities' databases. ATLAS also randomly selects a number of declarations that have to be examined more closely (OECD/WTO, 2016).

Suluo, (2013) shows that, ICT use has led to high level of accountability and consequently better performance. On the other hand, Crede, (2008) insists that, first, ICT has the capacity to increase productivity and create more efficiency and effective output with the same or less inputs and second; development of ICT applications for business use alter the approach organizations function and eventually, improve their services as well as products. In essence the above scholars emphasize the fact that; the spread of ICT use in various sectors brings new opportunities for economic growth and development.

Customs Services Department of the Kenya Revenue Authority was established by an Act of Parliament in 1978. It is the largest of the four revenue departments in terms of manpower, revenue collection and countrywide operational network. Wambua (2008) did a study on the effects of reform programs on staff morale in the KRA and concluded that, for the KRA to achieve significant improvements in customs operations, it needed radical changes in a range of customs fields including but not limited to, facilities, operational methods, legislation and human resource management systems and customs systems and procedures. This would reduce the costs it operations and increase accountability.

The changes made in customs clearance procedures were all geared towards improving the efficiency and effectiveness of customs control and to facilitate legitimate trade. They included: The introduction of the Electronic Cargo Tracking System; the introduction of management controls. A study by Buyonge's (2007), concentrated on issues in customs in Africa affirmed that, the future role of customs administration in Africa, particularly in regard to unavoidable structural reform, will be required to respond properly to the demands for revenue optimization and enforcement of regulatory policies and practices. This will be achieved through modification to both national and international necessities.

Nada and Jack (2009), investigated customs reforms in Kenya in regard to policy and administrative issues. The study concluded that, customs system in Kenya, has experienced continuous reform over the years. Hence the simplification of schedules rate from the policy perspective. They further observed that, it is imperative to have continued reform of both policy instruments and both administrative and enforcement capacity of the tax system. This is against the background of the KRA's revelation that, there are certain entrepreneurs and members of certain professional bodies who are required to register their annual turnover independently; however, this requirement is barely enforced. In addition, it is in the public knowledge that the KRA's major focus is tax collection and as such seeks to maximize revenue on behalf of the national government. Moreover, it is noted that refund payment is low on its list of priorities. However, this policy may be self-defeating in the event that compliance falls or is not enforced.

2.4.2 Work Flow

Different literatures points out automation to be extremely beneficial to the Customs Services hence impacts on departmental output and improves on work flow in operations. According to Rand and Martin, (2013), Brazil has used the digital invoice to secure internal data for cross-border supplies among the twenty-seven Brazilian states since 2006. Further, they elaborate the fact that this is part of the Brazilian tax modernization program called 'the Sistema Publico de Escrituracao Digital. This move that enhanced rapid progress at the onset, which proves that the environment has a huge impact on psychological outcome hence, the tax authority, ought to mold the commercial environment.

Kefela (2009), reveals that enforceable and simple laws are part of any fruitful administrative reforms. He further explained that, it is important to simplify processes for customs; for instance, this may be achieved by avoiding pointless information on payment invoices and tax returns. He then concluded that this result in customs officials focusing on the essential tasks which comprise monitoring and facilitating compliance besides dealing with non-compliance.

The introduction of the new Integrated Customs Management System (ICMS) and the enhancement of the Simba 2005 – system functionality in critical areas that should deal with risk best selection and management reporting, the introduction of the new Single Administrative Document (SAD) which was based on an internationally accepted format; the development of training refresher courses for customs staff and sensitization of the community in the new customs procedures.

According to Mugisha, (2001), automation of customs systems and procedures, enhances timely access to accurate and relevant information, which is a prerequisite for good planning, programming, implementation as well as monitoring and evaluation which forms the key component in development. Harold (2011), argues that computer-generated returns, transmitted electronically are easier to process than paper returns; since the information on the forms does not have to be keyed in manually by IRS employees into the Service's computers, hence there is less chance of errors. Electronic transmittal is instantaneous, bypassing the frustrating vagaries of the postal system and the client receives confirmation within a day or two that the return not only was received by the IRS, but was received accurately.

According to Zake, J.O. (2010). automation projects and customs reforms may sometimes experience a lot of resistance due to fears of retrenchment, many people resist reforms which may go a long way in affecting the impact of structural automation; this may be attributed to the wish to hold on to status quo hence prior sensitization of the staff may come in very handy. The way leaders handle the implementation process is crucial. Many studies have explained that leadership enforcement shapes the attitude of the recipients and determines the outcome of the enforcement strategies the regular checkups and supervision provides a framework of ensuring that the implementation is swift.(Beer, M., & Eisenstein, A. 2000).

Three measures of the success of the digital invoice can be taken from efforts undertaken in Quebec, Tanzania, and Sweden to implement a digital invoice regime. Quebec adopted the digital invoice in 2011, but only in the B2C retail restaurant sector of the provincial economy. Estimated tax losses in this sector were $420 million annually. Enforcement actions based on data generated by the digital invoice system resulted in an additional $1.3 million in fines. In Tanzania, after working for two years with a B2B and B2C digital invoice regime significant revenue improvements were reported. By June of 2012 revenues were up by 38.1% over projected targets (Grainger & Andrew, 2014).

Crandall and Williams (2010), suggests that, prior to the introduction of customs enforcement measures for examples modernization of its structures, KRA made little use of information technology there was no strategy to reduce the manual processing of transactions. There were several reported cases of corruption as it was often easier for business men to bribe a customs officer than to discharge all duties or to evade the payment of customs duties by wrongly declaring of customs goods. There was also the problem of illicit trade and importation of counterfeit goods .There was therefore the need to create appropriate customs compliance strategy. Initially, the scrutiny of imported and exported goods which is an integral element of revenue control was carried out superficially and without any form of risk assessment.

Buyonge (2007), asserts that Customs automation has resulted in increased transparency in the assessment of taxes and duties, ensured a significant reduction in customs clearance time hence the reduction of port delays. This has provided significant benefits to both the government and trading communities. The introduction of customs enforcement measures has brought about a significant increase in revenue collection. Enforcement measures that targeted internal corruption and efforts to combat ills such as smuggling have been increasingly successful and have led to the decline of reported incidents of unlawful importation.

Moise (2005), argues that considerable time and effort has to be put into addressing issues which are outside the control of customs but which impact considerably on the success of measures to improve the relationship with other significant agencies like the port authorities, the trading community and the banking sector should continue being a priority. Trade has been facilitated due to the streamlining and simplification of customs clearance procedures although the situation still calls for further improvement Moise (2005), affirms that, by establishing improved recruitment, retention and other policies will enhance the skills and technical knowledge of the customs staff.

A study by Kefela (2009) revealed that straightforwardness and enforceable laws make up any fruitful administrative reforms. It is contended that simplification of procedures for taxpayers may for instance be achieved through getting rid of unnecessary information on customs and payment invoices. The study noticed that once the custom procedures are simplified, the customs officials can manage to focus on the core tasks which include monitoring compliance, facilitating compliance and dealing with non-compliance. The study acknowledges that tax system in Kenya has undergone perpetual reform over the past two decades. For instance, from the policy perspective there has been rationalization and simplification of rate schedules, a new value-added tax

introduced, and external tariffs brought on board in order to tally with those of East African countries (Suluo, 2013).

2.4.3 Ease of Doing Business

Major Progress has been achieved in the automation of procedures and operations, with constant significant efforts made towards the strengthening of revenue collection and improvement of trade facilitation in different countries. The pace and scope of modernization however remains insufficient particularly in developing customs control and enforcement capacities and enhancement of operational resources and management. KRA'S Strong commitment to reform, organizational and management changes, adequate technical assistance and project management and effective implementation of modern customs standards will be critical in accelerating modernization of customs (Cradall & Williams, 2010).

Ondiek (2013) sought to examine the responses by Kenya Revenue Authority on the challenges encountered in the implementation of the structural reforms and modernization. In his study sought to establish how KRA implemented the CRM program. Findings of the study indicated that the biggest challenges stumbled upon by KRA were lack of requisite skills, resistance to change, lack of resources, and lack of a supportive telecommunication infrastructure (Gachanja 2012). Further they note that, refund payment is low on its list of priorities. Nevertheless, the authors argued that this policy may be self-defeating in the event that compliance falls or is not enforced.

According to Drucker (1994), Customs is one of the lead agencies at the ports and borders. Any customs policy directed at improving the nation's economic competitiveness – such as in the context of trade facilitation, the administration of trade procedures or the collection of necessary tax revenue – needs to take account of how its performance is viewed by the business community. Indeed, modern performance management systems require a balanced view.

They should not only be inward looking (by capturing financial and operational performance, and perhaps, organizational learning and innovation); they also need to capture how the organization is seen from the outside (Kaplan, David & Norton 1992). Trade and customs compliance costs lies at the heart of how businesses see their relationship. Efficient performance management systems often need a detailed understanding of how the customs administration is viewed by its users.

2.4.4 System Operational Efficiency

In the traditional international border model, a user of a border point, who could be a trader or a traveler, needs clearance from one side of the border to the other side for entry clearance. However, countries sharing international borders are enhancing their system operational efficiency; there are several government agencies that are responsible for border controls. For efficient and effective operations, these agencies need to operate in a coordinated manner to minimize duplications and redundancies. To date, five one-stop border posts have been completed in East Africa including Busia, Holili Taveta, Mutukula (Uganda/Tanzania) Kagitumba Mirama Hills (Rwanda/ Uganda) and Kobero Kabanga (Burundi/Tanzania). This will bring officials from both countries to increase efficiency.

Malaba Customs Border Post is an international border between Kenya and Uganda. It is situated East of Kenya and West of Uganda, approximately 500 kilometers by road from Kenya's capital city Nairobi and 300 kilometers from Kampala, the capital city of Uganda. It has become a major trading centre for both countries and imports to Kenya from Uganda (Compete USAID, 2010). The Malaba border accounts for the bulk of both trade and human traffic between the two East African countries and is characterized by heavy human traffic, petroleum tankers, small scale cross border trade and containerized cargo trucks carrying imports, exports and goods on transit to other countries.

The process of reviewing and aligning procedures should be continuous in order to ensure that OSBPs operate with border crossing procedures that are not only effective but also facilitative and relevant to the prevailing circumstances. Joint operations and the need to observe jurisdiction in an OSBP environment require specific considerations when crafting OSBP procedures. ICT and Data Exchange: ICT is a critical component of collaborative single window systems, simplification of documentation, border management, and modernization of customs, immigration, and related services. According to Igadwah, (2017), the completion of the Malaba border post raised hope for faster clearance of goods and passengers between Kenya and Uganda. The Border Post has been functioning with sub optimal infrastructure since its commissioning. The completion allowed the use of the new dual carriage Weigh Bridge and separate entry as well as exit roads into Kenya and Uganda. Previous tedious clearance procedures at both sides often lead to delays and congestion at the border point. According to the July 2016 Baseline Time and Traffic survey report, an average of 615 trucks cross the Malaba border from Uganda to Kenya, and around 651 trucks from Kenya to Uganda. It takes an average of 5.97 hours for a commercial truck to cross the border from Uganda to Kenya, with 2.92 hours spent queuing and 3.05 hours accounting for cargo processing time.

2.5 Critique of the Existing Literature Relevant to the Study

Ondiek (2013) sought to examine the responses by Kenya Revenue Authority on the challenges encountered in the implementation of the structural reforms and modernization. In his study he sought to establish how KRA implemented the CRM program. Findings of the study indicated that the biggest challenges stumbled upon by KRA were lack of requisite skills, resistance to change, lack of resources, and lack of a

supportive telecommunication infrastructure. This study did not examine the influence of accountability. Gachanja (2012) further noted that, refund payment is low on KRA's list of priorities. Nevertheless, the authors argued that this policy may be self-defeating in the event that compliance falls or is not enforced. This study left out ease of doing business that this study focused on.

2.6 Summary of Literature

The chapter reviewed literature by other scholars and researchers on the topic of the Influence of system operational efficiency in revenue collection. This was done by explaining the relevant theories to the study such as: the Theory of performance by Don Elger(2002) , Resource Based Theory by Barney and Lee (1991) and the Theory of Accountability by Lener and Tetlock (1999) .The study also reviewed the empirical literature that have been studied on the area Influence of System Operational Efficiency in Revenue collection in both the public and private sector, under the following objectives : determine the extent to which accountability on system operational efficiency influences revenue collection. Work flow in system operational efficiency and lastly influence of ease of doing business in system operational efficiency on revenue collection. This was what formed the parameters that filled the gaps by this study.

2.7 Research Gaps

This study reviewed literature by other scholars on the topic of the Influence of System Operational Efficiency in Revenue Collection at Malaba Border. This opened the gaps in which this study set out to operationalize the variables by seeking to fill in the gaps under the following objectives: the extent to which accountability on systems Operational Efficiency Influences Revenue collections, Workflow in System Operation and Ease of doing Business However, the researcher in this study noted that the, majority of the studies have concentrated on the management of revenue modernization system hence there is no study that has concentrated on the influence of system operational efficiency in revenue collection in Kenya hence this study therefore seeks to fill this research gap.

3. Research Methodology

This chapter presented the methodology, which the researcher used to carry out the study on the Influence of System Operational Efficiency on Revenue Collection at Malaba Border. It further describes the type and source of data, the target population and sampling methods and the techniques that were used to select the sample size. It also describes how data was collected and analysed.

3.2 Research Design

This study used descriptive research design. Descriptive research seeks to establish factors associated with certain occurrences, outcomes, conditions or types of behavior. Descriptive research is a scientific method of investigation in which data is collected and analyzed in order to describe the current conditions, terms or relationships concerning a problem (Kothari, 2004).

3.3 Population

Target population as defined by (Neuman, 2000), as an universal set of the study of all members of real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result. This study targeted the 1 Head Verification officer, 3 Verification Officer, 52 Border Control Officers, 82 Clearing Agents.

Table 3.1 Target Population

3.4 Sampling Frame

This is a list of all sampling units available for selection at a stage of the sampling process (Neuman, 2000). This study sample frame involved different departments at KRA. In this study, the sampling frame consisted of 1 Head Verification officer, 3 Verification Officers, 52 Border Control Officers, 82 clearing agents within Malaba Customs office as a source list from which the sample is drawn (Kothari, 2004).

3.5 Sample and Sampling Technique

According to (Kothari, 2004) sampling is the process by which a relatively small number of individual, object or event is selected and analyzed in order to find out something about the entire population from which was selected. A sample is a small proportion of targeted population selected using some systematic form. Purposive sampling was used to pick respondents at Malaba Customs Office as this group has specific information related to the influence of system operational efficiency in revenue collection at Malaba Customs Office, while, proportionate random sampling was used sample the 102 respondents. The research used stratified random sampling to sample the customs officers in this study because this method enabled generalization of a larger population with a margin of error that is statistically determinable; the accessible sample size of the customs officers targeted 138 respondents. The sample size of respondents for this study was calculated using the formula for finite population as proposed by Israel (2009).

$$n = \frac{N}{1+N(e2)}$$

Where: n= desired sample size

N= Population

e = margin of error at 5% (standard value of 0.05)

The sample size for the study will be:

$$n = \frac{138}{1+138(0.052)} = 102 \text{ respondents}$$

Proportionate sampling was used to involve 1 head verification officer, 2 verification officer, 39 border control officers and 60 clearing agents.

Table 3.2 Sample Size

3.6 Data Collection Instruments

The research instruments that were employed in this study as the tools for data collection included questionnaires. This covered both closed and open ended questions and was given to the 108 respondents as a way of acquiring data on the Influence of System Operational efficiency in revenue collection at Malaba Customs Office. A questionnaire was the most suitable instrument for this study for it is a set of structured questions used by the researcher to get needed information from the respondents (Oppenhelm, 2010). It has several advantages which included low cost of collecting data, designing the questionnaire and sending it to a respondent as well as being less expensive in analyzing and processing the data .

3.7 Data Collection Procedure

The researcher sought to collect data from the sampled respondents from the Malaba border customs office. An introductory letter for data collection was first obtained from KESRA College. The researcher further made appointments with the respective respondents in respective departments. The researcher personally administered the questionnaire to the respondents. However, where the respondents were busy or unable to fill the questionnaires at that moment drop and pick later method will be adopted. A deadline was set by which the completed questionnaires must be ready. To ensure high response rates, the researcher interpreted each of the sections of the questionnaires to the respondents to ensure that they fully understand the questions before answering. Information and the data collected from respondent was treated confidentially and was only used for the study.

3.8 Pilot Testing

This pilot study was conducted at the neighboring Busia Customs office. This allowed for pre-testing of the research instrument with a small representative of the sample size of the target population. This enabled the researcher to be familiar with the research and its administration procedures as well as identifying items that require modification. This ensured validity, reliability and effectiveness of the research instrument.

3.8.1 Reliability of Instruments

The pilot study allowed for pre-testing of the research instrument (Kothari, 2004). The respondents who participated in the pilot study were not included in the actual study. The test was utilized to check if questionnaires with multiple Likert scale questions were reliable and internally consistent. SPSS software was used to compute the Cronbach's Alpha. George and Mallery (2003) recommended a value of 0.7 or greater as acceptable for the reliability test (Waithera, 2015). Consequently the 0.7 value was the benchmark value the study used to test the reliability of the questionnaire.

Pilot study was conducted on 15 respondents who accounted for 14.7% of the total sample size (102). They comprised of 1 verification officer, 7 border control officers and 7 clearing agents. The results of the reliability test were presented in Table 3.3 below. From the findings presented in table 3.3 it can be concluded that the constructs measured had the adequate reliability for the succeeding phases of analysis. Since all the Cronbach's Alpha values of the variables measured were greater than 0.7.

Table 3.3: Cronbach's Alpha for Reliability Assessment of the Questionnaire

3.8.2 Validity of Instruments

Validity was determined in by the researcher discussing the items in the instrument with the experts including supervisor, lecturers from the department and colleagues. The participants were expected to indicate by tick or cross for every item in the questionnaire if it measured what it was supposed to measure or not. Their views and responses about the questionnaire were reviewed and employed to enhance the research instrument where appropriate.

3.9 Data Analysis

According to (Kothari, 2004) data analysis procedure includes the process of packaging the collected information putting in order and structuring its main components in a way that the findings can be easily and effectively communicated. After the fieldwork, before analysis, all questionnaires were adequately checked for reliability and verification. Editing, coding and tabulation was carried out. The data was analyzed using descriptive statistics. Qualitative data involved thematic analysis while quantitative method involved descriptive statistics. The study used SPSS version 22 as a tool in the analysis of the findings. Descriptive statistics was presented using frequency tables and bar graphs. Inferential statistics involved regression analysis.

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

Where: Y = Revenue collection

$\{\beta\ i\ ;\ i=1,2,3\}$ = The coefficients for the various independent variables

Xi for; X1 = Accountability

X2 = Work flow

X3 = Ease of doing business

ε = Error term

In the model 0 is the constant term while the coefficient $\beta 1$ to $\beta 3$ was used to measure the sensitivity of the dependent variable (Y) to unit change in the independent variable (X1, X2, and X3). □ is the error term which captured the unexplained variations in the model.

4. Research Findings and Discussions

This chapter dealt with data analysis, presentation and interpretation. Data analysis and presentation is based on the three study objectives: To determine the extent to which accountability in system operational efficiency influences revenue collection at Malaba Border. To identify the influence of work flow in system operational efficiency in revenue collection at Malaba Border. To determine the influence of ease of doing business in system operational efficiency in revenue collection at Malaba Border. The data

analysis initiates with the demographic knowledge' of the respondents followed by interpretation and discussion of research results established from the research questions. The findings are presented in form of frequency tables.

4.2 Response Rate

This study involved the 1 head verification officer, 2 verification officer, 39 border control officers and 60 clearing agents. Out of 102 respondents, 95 returned their filled questionnaires which made a 93.13 per cent return rate. As indicated by Mugenda and Mugenda (2003) in his studies 50 per cent of reaction rate of above 70% rated is very good. This means that a response of 93.13 per cent was very good for data analysis. This return rate was therefore deemed appropriate for the study.

4.3 Demographic Analysis

The researcher started by a general analysis on the demographic data got from the respondents which included: gender, age bracket, education level and working experience. This was followed by a description of the study variables under various sections of the questionnaire.

Figure 4.1: Gender of the respondents

The study findings on the gender employees at the border post indicated that majority (62%) were males. This might show that there was representation of employees from both gender. The gender distribution was found to be appropriately to give adequate information about the effect of system operational efficiency in revenue collection in Kenya.

The respondents were asked to specify their age bracket. The data is presented in Table 4.1.

Table 4.1: Age bracket of the respondents

Findings in Table 4.1 revealed that majority 57 (60%) of the respondents were aged above 30 years while 31 (32%) were aged between 21-30 years. Only 7 (8%) were between 15-20 years old. This implies that most of the respondents were of various ages and hence the information on effect of system operational efficiency in revenue collection in Kenya was from a variety of people.

Table 4.2: Education level of the respondents

Majority 63 (66%) of the respondents had university level of education while a few 20 (21%) had college level. Therefore, the information on the effect of system operational efficiency in revenue collection in Kenya was from an informed set of people.

The respondents were asked for the years they had worked at Malaba border customs office. Their lengths of respondents stay in the area are shown in Table 4.3.

Table 4.3: Length Respondents had dealt with Malaba Border Customs Office

From Table 4.5, 62 (66%) of the respondents had worked at Malaba border for more than three years, 19 (20%) between 2 to 3 years, 8 (8%), had worked for between 1 and 2 years, and 6 (6%) for less than 1 year. Respondents could therefore easily respond to questions on the effect of system operational efficiency in revenue collection in Kenya.

4.4 Extent to which Accountability in System Operational Efficiency in Revenue Collection

The study investigated the accountability in the system operational efficiency by probing various aspects of system accountability that influence revenue collection. The findings on the system operational efficiency having enhanced accountability in revenue collection is shown in Figure 4.2.

Figure 4.2: System Operational Efficiency Enhances Accountability in Revenue Collection

The findings in Figure 4.2, revealed that majority (90%) of the respondents agreed that system operational efficiency had enhanced accountability in revenue collection while (10%) disagreed. Customs is one of the lead agencies at the ports and borders. Any customs policy directed at improving the nation's economic competitiveness – such as in the context of trade facilitation, the administration of trade procedures or the collection of necessary tax revenue – needs to take account of how its performance is viewed by the business community. Indeed, modern performance management systems require a balanced view (Drucker, 1954).

Table 4.4: Accountability

From the findings, it was revealed that majority 76 (80%) agreed that the system is able to capture data of all outbound trucks. Majority 74 (78%) also agreed that the system is able to report a violation on a real time basis. A large number 80 (84%) agreed that vehicle and cargo documentation is captured and stored on the system while 87 (91%) agreed that collection of duties and taxes is made easier. Majority 91 (96%) agreed that clearance of cargo trucks at the border is made faster with the system. According to Thirsk, (2011), not only should a government avoid raising taxes on the poor, but should also reduce their tax burden by avoiding tax incentives and shifting to broader, simpler custom bases on which lower rates are applied; minimizing corporate tax evasion (some countries levy minimum taxes on a company's net worth); and lowering distortions that reduce economic welfare and growth. Table 4.5 indicates the findings on the accountability in system operational efficiency and revenue collection.

Table 4.5: Accountability in System Operational Efficiency and Revenue Collection

The findings showed that respondents agreed that the infrastructure set-up of the system is not expensive as shown by a means of 4.02 and a standard deviation of 0.90. There was a reduction of operating costs with the introduction of ECTs as revealed by a mean of 3.95 and a standard deviation of .89. The penalties and fines due to late delivery have reduced as shown by a mean of 4.09 and a standard deviation of 1.01. There is realization of more revenue with introduction of ECTs as revealed by a mean of 3.73 and a standard deviation 1.01. Majority also indicated that cost reduction

with the reduction of organization processes as shown by a mean of 4.19 and a standard deviation of .96.

Crede, (2008) study showed that, first, ICT has the capacity to increase productivity and create more cost effective output with the same or less inputs and second; development of ICT applications for business use alter the approach organizations function and eventually, improve their services as well as products. In essence the above scholars emphasize the fact that; the spread of ICT use in various sectors brings new opportunities for economic growth and development.

4.5 Influence of Work Flow in System Operational Efficiency in Revenue Collection

This study probed if having system operational efficiency having has influence on workflow in revenue collection. The findings are indicated in the figure and frequency tables in the next page.

Figure 4.3 System Operational Efficiency having an Influence on Workflow in Revenue Collection

The findings in Figure 4.3, revealed that majority (92%) of the respondents agreed that system operational efficiency having an influence on workflow in revenue collection while (8%) disagreed. According to Mugisha, (2001), the use of ICT enhances timely access to accurate and relevant information, which is a prerequisite for good planning, programming, implementation as well as monitoring and evaluation which forms the key component in development.

Table 4.6: Work Flow in System Operational efficiency and Revenue Collection

Majority indicated that cargo theft has reduced drastically as shown by a means of 3.55 and a standard deviation of .93. A large number indicated that cargo dumping has been reduced drastically as revealed by a means of 3.56 and a standard deviation of 1.05. With the reduction of cargo dumping, infant business are now safer as shown by a means of 3.53 and a standard deviation of 1.12. Reduction of the entry of prohibited and restricted goods, into the country, as shown by a mean of 3.60 and a standard deviation of .84. There has been a reduction of loss of cargo along the transit routes with the introduction of ECTs as revealed by a means of 3.92 and a standard deviation of 1.04. The reports generated can be saved and used in any Microsoft format making it easier to work on the data as shown by a means of 3.72 and a standard deviation of 1.01. The software is able to store information and make it available even when offline as shown by a means of 3.23 and a standard deviation of 0.33. Harold (2011), argues that computer-generated returns, transmitted electronically are easier to process than paper returns; since the information on the forms does not have to be keyed in manually by IRS employees into the Service's computers, hence there is less chance of errors. Electronic transmittal is instantaneous, bypassing the frustrating vagaries of the postal system and the client receives confirmation within a day or two that the return not only was received by the IRS, but was received accurately.

4.6 Influence of Ease of Doing Business in System Operational Efficiency in Revenue Collection

This study investigated the influence of ease of doing business in system operational efficiency in revenue collection. This was done by looking at various aspects of Ease of doing business in system operational efficiency and revenue collection.

Figure 4.4: System Operational Efficiency Having Influence on Ease of Doing Business in Revenue Collection

The findings in Figure 4.2, revealed that majority (95%) of the respondents agreed that system operational efficiency had an influence on ease of doing business in revenue collection while (5%) disagreed. Customs is one of the lead agencies at the ports and borders. Any customs policy directed at improving the nation's economic competitiveness – such as in the context of trade facilitation, the administration of trade procedures or the collection of necessary tax revenue – needs to take account of how its performance is viewed by the business community. Indeed, modern performance management systems require a balanced view (Drucker, 1994).

Table 4.7: Ease of doing Business in System Operational Efficiency and Revenue Collection

Majority of the respondents indicated that the system is compatible with the other set-up organizational systems as revealed by a means of 3.81 and a standard deviation of .68. The system is able to easily merge with the systems for the neighboring countries as revealed by a means of 3.99 and a standard deviation of .90. The ECT system is able to pair and works well with android systems as revealed by a means of 3.87 and a standard deviation of .89. The system allows multiple users to be online and work at the same time as revealed by a means of 4.18 and a standard deviation of 1.08. The system allows tasks to be handled faster at the different stations as revealed by a means of 4.07 and a standard deviation of .92. According

to De Wulf and Sokol, (2014), application of technological solutions towards the strategic goals for government is a key step towards transforming government into an entity that can keep abreast of the needs, requirements and expectations of today's modern world. Constant system upgrades therefore are able to bring about ease of doing business.

Table 4.8: Safety as a Result of System Operational Efficiency

Majority 84 (88%) agreed that cargo theft has reduced drastically due to ECTs while 80 (84%) agreed that cargo dumping has been reduced drastically. A large number 72 (76%) agreed that with the reduction of cargo dumping, infant business are now safer while 78 (82%) agreed that reduction of the entry of prohibited and restricted goods, into the country. Majority 75 (79%) agreed that Reduced loss of cargo

along the transit routes with the introduction of ECTs. Osoro, (2013), argues that the revenue structures of most African countries have not been as productive as desired, for instance, Ghana and South Africa, too often their revenue growth has failed to catch up with government spending pressures, a situation that has occasioned huge imbalances between the demand and supply of public budgetary resources. These countries have then had to reform their tax structures, with the general objectives of revenue adequacy, economic efficiency, equity and fairness, and simplicity.

4.7 Regression Analysis

Regression Analysis was carried out for focus on accountability, work flow, ease of doing business and revenue collection. To test for the relationship that the independent variables have on revenue collection, the study did the multiple regression analysis. The results are presented in subsequent Table 4.9.

Table 4.9: Model Summary

The model summary presented in Table 4.9 above depicts the R-values, where R is 0.717 (71.7%) and the R-Square is 0.514 (51.4%). The results of regression analysis indicated that there is a strong relationship between system operational efficiency factors (accountability, workflow and ease of doing business) on revenue collection evidenced by an R-value of 0.717. The results also established that the system operational efficiency factors explained 51.4% of the total variance in revenue collection as indicated by an R-square value of 0.514. This implies that these variables are significant therefore need to be considered in any effort to boost revenue collection in Malaba Border customs office. The study therefore identifies variables as critical determinants of revenue collection.

Since 51.4% of the variation in revenue collection was explained by system operational efficiency factors. It meant that other factors that were not assessed in this research study contributed to 48.6% of the variation in revenue collection. Further research should be carried out to establish the rest of the factors that explains the remaining 48.6% variation in revenue collection.

Furthermore, the sample was adequate enough to represent the population of the study. That is the reason why the Adjusted R-Square of 0.5 was not used to provide a better estimation of the population. Finally, a durbin-watson statistic of 2.409 meant that the residuals of the regression model were not serially correlated. The residuals are serially correlated if the durbin-watson statistic is less than 1.5 (Ngechu, 2004).

In order to conduct a diagnosis on whether there is multi-collinearity (strong relationship between independent variables). Table 4.10 on coefficients was used to examine the tolerance and VIF of the independent variables that comprised of Accountability, Work flow and Ease of doing business. In order to establish that multi-collinearity does not exist. The tolerance value allowable should not be less than 0.1 while the VIF value should not be above 10 (Pallant, 2007).

Table 4.10: Multi-collinearity Statistics

According to the findings of the study, the tolerance values of the independent variables were; 0.406 for Accountability, 0.368 for Work flow and 0.325 for Ease of doing business. Which were not less than 0.1; therefore there was no violation of the multi-collinearity assumption. This was also justified by the VIF values for; Accountability = 2.466, Work flow = 2.718, and Ease of doing business 3.076, which were below the cutoff of 10. Then a test for significance was done as in Table 4.11.

Table 4.11: ANOVA

Analysis of Variance (ANOVA) was performed to test the regression model's goodness of fit. The results revealed that the regression model has good goodness of fit as indicated by a 0.0% level of significance. Consequently the model was statistically significant and reliable in predicting how accountability, work flow, ease of doing business influence revenue collection in Malaba Border customs office. The F critical at 5% level of significance was 7.500. This shows that the overall model was significant. The study ran the procedure of obtaining the regression coefficients to establish how each independent variable statistically influences the dependent variable. The results were presented in Table 4.12 below.

Table 4.12: Coefficients

The study found out that accountability, workflow and ease of doing business had a positive and statistically significant influence on revenue collection. This was evident by p-values that were lower than 0.05 and t values that were more than 2. The t-values and p-values recorded were: Accountability (t= 2.923, p= 0.004), Work flow (t= 3.187, p= 0.002) and Ease of doing business (t= 3.409, p= 0.001).

The following regression equation was derived from the regression co-efficients:

$Y = 1.854 + 0.251X1 + 0.259X2 + 0.098X3$

Where;

Y – Revenue Collection (Dependent Variable)

X1 - Accountability

X2 – Work flow

X3 – Ease of doing business

The constant value of 1.854 means that if accountability, workflow and ease of doing business were absent, then revenue collection would be 1.854 which is a very small value. The researcher estimated stochastic error term of the model to be zero in order to come up with the regression equation. If Accountability, Work flow and Ease of doing business were each increased by one unit then, revenue collection would increase by 25.1%, 25.9% and 9.8% respectively.

5. Summary, Discussions, Conclusions and Recommendations

This chapter summarizes the findings of the study and presents conclusions, recommendations and suggestions for further research.

5.2 Summary of the Study Findings

The study sought to examine the influence of system operational efficiency in revenue collection in Kenya: a case of Malaba border customs office. The study was guided by the following objectives; To determine the extent to which accountability in system operational efficiency influences revenue collection at Malaba Border. To identify the influence of work flow in system operational efficiency in revenue collection at Malaba Border. To determine the influence of ease of doing business in system operational efficiency in revenue collection at Malaba Border. The study found out that the majority of respondents agreed that the accountability of customs systems, work flow and ease of doing business is influenced positively by embracing system operational efficiency in revenue collection at Malaba Border

5.2.1 Extent to Which Accountability in System Operational Efficiency Influences Revenue Collection

The findings showed that majority (90%) of the respondents agreed that system operational efficiency enhances accountability in revenue collection while (10%) disagreed. The findings showed that respondents agreed that the system is able to capture data of all outbound trucks. Majority 74 (78%) also agreed that the system is able to report a violation on a real time basis. A large number 80 (84%) agreed that vehicle and cargo documentation is captured and stored on the system while 87 (91%) agreed that collection of duties and taxes is made easier. Majority 91 (96%) agreed that clearance of cargo trucks at the border is made faster with the system. The regression analysis results revealed that accountability has a strong positive significant influence on revenue collection. This was justified by a t value and p value of 2.923 and 0.004 respectively. This meant that an increase in accountability consequently leads to increase in revenue collection at the border.

5.2.2 Influence of Work Flow in System Operational Efficiency in Revenue Collection

The findings revealed that majority (92%) of the respondents agreed that system operational efficiency having an influence on workflow in revenue collection while (8%) disagreed. Majority indicated that cargo theft has reduced drastically as shown by a means of 3.55 and a standard deviation of .93. A large number indicated that cargo dumping has been reduced drastically as revealed by a means of 3.56 and a standard deviation of 1.05. With the reduction of cargo dumping, infant business are now safer as shown by a means of 3.53 and a standard deviation of 1.12. Reduction of the entry of prohibited and restricted goods, into the country as shown by a mean, of 3.60 and a standard deviation of .84. There has also been a reduced loss of cargo along the transit routes with the introduction of ECTs as revealed by a means of 3.92 and a standard deviation of 1.04. The reports generated can be saved and used in any Microsoft format making it easier to work on the data as shown by a means of 3.72 and a standard deviation of 1.01. The software is able to store information and make it available even when offline as shown by a means of 3.23 and a standard deviation of 0.33. The regression analysis results found that workflow had a strong positive significant influence on revenue collection. This was justified by a t value and p value of 3.187 and 0.002 respectively. This meant that an increase in workflow impacts on the increase in revenue collection at the border.

5.2.3 Influence of Ease of doing Business in System Operational Efficiency in Revenue Collection

The findings revealed that majority (95%) of the respondents agreed that system operational efficiency had an influence on ease of doing business in revenue collection while (5%) disagreed. Majority of the respondents indicates that the system is compatible with the other set-up organizational systems as revealed by a means of 3.81 and a standard deviation of .68. The system is able to easily merge with the systems for the neighboring countries as revealed by a means of 3.99 and a standard deviation of .90. The ECT system is able to pair and works well with android systems as revealed by a means of 3.87 and a standard deviation of .89. The system allows multiple users to be online and work at the same time as revealed by a means of 4.18 and a standard deviation of 1.08. The system allows tasks to be handled faster at the different stations as revealed by a means of 4.07 and a standard deviation of .92. The regression analysis results revealed that the ease of doing business has a strong positive significant influence on revenue collection. This was justified by a t value and p value of 3.409 and 0.001 respectively. This meant that an increase in ease of doing business consequently leads to increase in revenue collection at the border.

5.3 Conclusions

5.3.1 Extent to which Accountability in System Operational Efficiency influences Revenue Collection

It can be concluded that accountability in system operational efficiency positively influenced revenue collection. The findings showed that respondents agreed that the system is able to capture data of all outbound trucks. The system is able to report a violation on a real time basis. Vehicle and cargo documentation is captured and stored on the system and that collection of duties and taxes is made easier. Clearance of cargo trucks at the border is made faster with the system

5.3.2 Influence of Work Flow in System Operational Efficiency in Revenue Collection

It can be concluded that work flow in system operational efficiency has an influence on revenue collection. Cargo theft and cargo dumping has been reduced drastically. With the reduction of cargo dumping, infant business are now safer thus prompting a reduction of the entry of prohibited and restricted goods, into the country. There has also been a reduced loss of cargo along the transit routes with the introduction of ECTs. The reports generated can be saved and used in any Microsoft

format making it easier to work. The software is able to store information and make it available even when offline.

5.3.3 Influence of Ease of doing Business in System Operational Efficiency in revenue collection

The study concluded that the ease of doing business brought about by system operational efficiency had increased revenue collection. The system is compatible with the other set-up organizational systems. The system is able to easily merge with the systems for the neighboring countries. The ECT system is able to pair and works well with android systems. The system allows multiple users to be online and work at the same time. The system allows tasks to be handled faster at the different stations. All these factors enhance revenue collection.

5.4 Recommendations

Based on the basis of the study findings, the study makes the following recommendations;

5.4.1 Extent to which Accountability in System Operational Efficiency influences Revenue Collection

Technology should be applied innovatively in order to enhance revenue accountability. This will combat tax evasion and fraud in the customs department. There should be regular audits in order to have accountability of the system. This is can be done by Intelligence Gathering System (IGS) for web based anonymous tax evasion reporting.

5.4.2 Influence of Work Flow in System Operational Efficiency in Revenue Collection

The system need to be continuously upgraded in line with prevailing technology in order to improve work flow in the customs department. There should be a clear and focus outreach, communication and education programs to help enhance customs officers and tax payers interactions with the system.

5.4.3 Influence of Ease of doing Business in System Operational Efficiency in Revenue Collection

The concerned parties should enhance their channels of communication and a way to work together so as to be able to make progressive steps while using the system. This will lead to an enhanced ease of doing business. There should be improved internal communication by having revamped system.

5.5 Area for Further Research

Opportunities for further research still exist in this area. The study examined influence of system operational efficiency in revenue collection in Malaba border customs office;

Therefore, further research should be carried out in other borders.

Other factors under system operational efficiency influencing revenue collection could also be researched like for instance challenges faced by the system and how this affects revenue collection.

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Annex

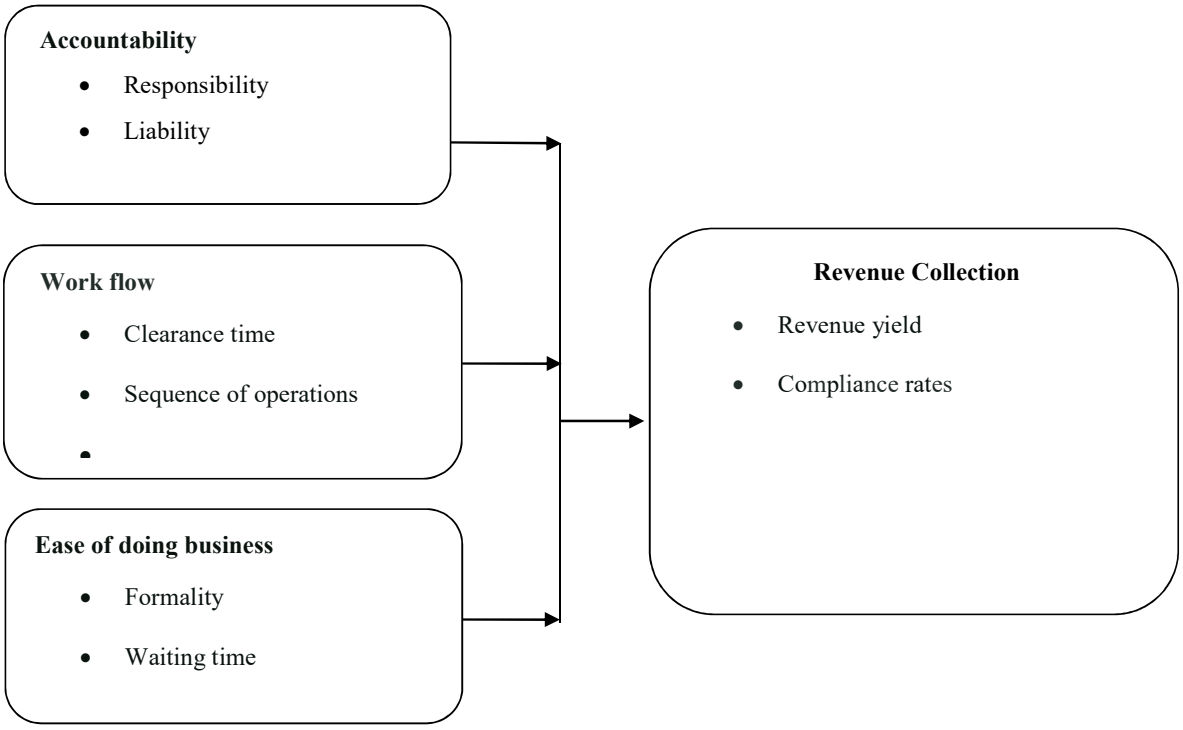

Figure 2.1: Conceptual Framework

Table 3.1 Target Population

Respondents	Target
Head Verification Officer	1
Verification Officer	3
Border Control Officers	52
Clearing Agents	82
Total	**138**

Table 3.2 Sample Size

Respondents	Target	Sample size
Head Verification Officer	1	1
Verification Officer	3	2
Border Control Officers	52	39
Clearing Agents	82	60
Total	**138**	**102**

Table 3.3: Cronbach's Alpha for Reliability Assessment of the Questionnaire

Reliability Test Results for the Questionnaire		
Variables	**Crobach's Alpha**	**No. of Items**
Accountability in System Operational Efficiency and Revenue Collection	0.738	5
Work Flow in System Operational Efficiency and Revenue Collection	0.928	7
Ease of Doing Business in System Operational Efficiency and Revenue Collection	0.870	5

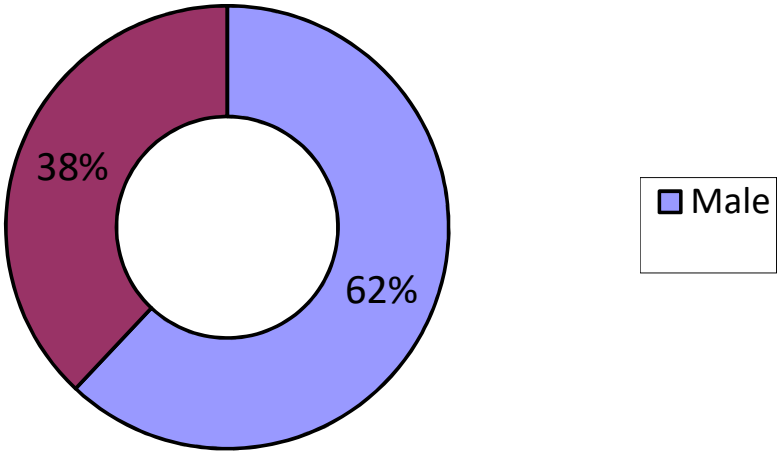

Figure 4.1: Gender of the respondents

Table 4.1: Age bracket of the respondents

Age bracket	Frequency	Percentage
Below 15 years	0	0
15-20 years	7	8
21-30 years	31	32
Above 30 years	57	60
Total	**95**	**100**

Table 4.2: Education level of the respondents

Education level	Frequency	Percentage
Pre primary	2	2
Primary	5	5

Secondary	10	10
College	20	21
University	63	66
Total	**95**	**100**

Table 4.3: Length Respondents had dealt with Malaba Border Customs Office

Category	Frequency	Percentage
Less than 1 year	6	6
1 - 2 years	8	8
2 - 3 years	19	20
More than 3 years	62	66
Total	**95**	**100**

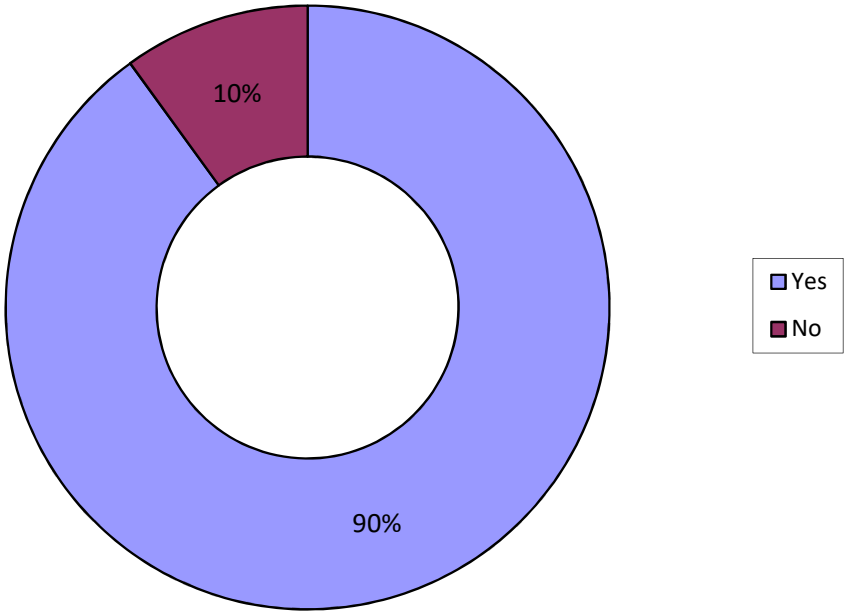

Figure 4.2: System Operational Efficiency Enhances Accountability in Revenue Collection

Table 4.4: Accountability

Statements	Yes	No
The system is able to capture data of all outbound trucks	76 (80%)	19 (20%)
The system is able to report a violation on a real time basis	74 (78%)	21 (22%)
Vehicle and cargo documentation is captured and stored on the system	80 (84%)	15 (16%)
Collection of duties and taxes is made easier	87 (91%)	8 (9%)
Clearance of cargo trucks at the border is made faster with the system	91 (96%)	4 (4%)

Table 4.5: Accountability in System Operational Efficiency and Revenue Collection

Statements	Mean	Standard deviation
The infrastructure set-up of the system is accountable	4.02	.90
There is accountability with the introduction of ECTs	3.95	.89
Penalties and fines due to late delivery have reduced	4.09	1.01
There is realization of more revenue with introduction of ECTs	3.73	1.01
Cost reduction with the reduction of organization processes	4.19	.96

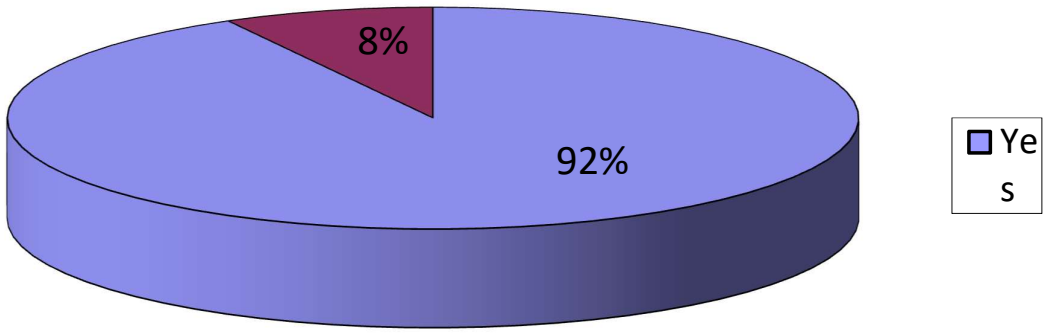

Figure 4.3

System Operational Efficiency having an Influence on Workflow in Revenue Collection

Table 4.6: Work Flow in System Operational efficiency and Revenue Collection

Statements	Mean	Standard deviation
Cargo theft has reduced drastically	3.55	.93
Cargo dumping has been reduced drastically	3.56	1.05

With the reduction of cargo dumping, infant business are now safer	3.53	1.12
Reduction of the entry of prohibited and restricted goods, into the country	3.60	.84
Reduced loss of cargo along the transit routes with the introduction of ECTs	3.92	1.04
The reports generated can be saved and used in any Microsoft format making it easier to work on the data	3.72	1.01
The software is able to store information and make it available even when offline	3.23	0.33

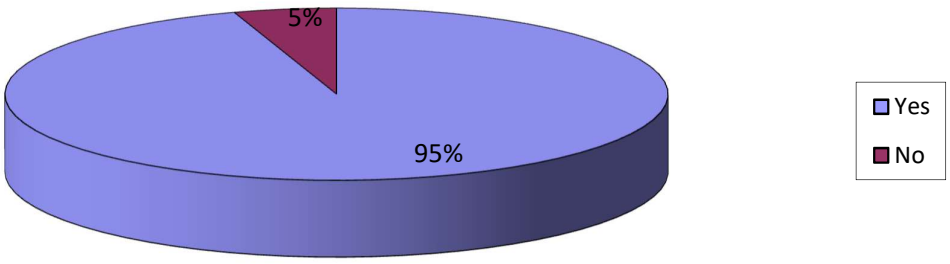

Figure 4.4: System Operational Efficiency Having Influence on Ease of Doing Business in Revenue Collection

Table 4.7: Ease of doing Business in System Operational Efficiency and Revenue Collection

Statements	**Mean**	**Standard deviation**

The system is compatible with the other set-up organizational systems	3.81	.68
The system is able to easily merge with the systems for the neighboring countries	3.99	.90
The ECT system is able to pair and works well with android systems	3.87	.89
The system allows multiple users to be online and work at the same time	4.18	1.08
The systems allows for tasks to be handled faster at the different stations	4.07	.92

Table 4.8: Safety as a Result of System Operational Efficiency

Statements	**Yes**	**No**
Cargo theft has reduced drastically	84 (88%)	11 (12%)
Cargo dumping has been reduced drastically	80 (84%)	15 (16%)
With the reduction of cargo dumping, infant business are now safer	72 (76%)	23 (24%)
Reduction of the entry of prohibited and restricted goods, into the country	78 (82%)	17 (18%)
Reduced loss of cargo along the transit routes with the introduction of ECTs	75 (79%)	20 (21%)

Table 4.9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error	Durbin Watson Statistic

1	.717[a]	.514	.500		0.16927	2.409

Predictors: (Constant), Accountability, Work flow, Ease of doing business

Table 4.10: Multi-collinearity Statistics

		Collinearity Statistics	
Model		Tolerance	VIF
1	(Constant)		
	Accountability	.406	2.466
	Work flow	.368	2.718
	Ease of doing business	.325	3.076

a. Dependent Variable: Revenue collection

Table 4.11: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.645	3	.215	7.500	.000[b]
	Residual	3.066	92	.029		
	Total	3.711	95			

a. Dependent Variable: Revenue collection

Predictors: (Constant), Accountability, Work flow, Ease of doing business.

Table 4.12: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		Beta	Std. Error	Beta	t	Sig.
1	(Constant)	1.854	.630		2.943	.004
	Accountability	.251	.086	.260	2.923	.004
	Work flow	.259	.081	.282	3.187	.002
	Ease of doing business	.098	.070	.125	3.409	.001

a. Dependent Variable: Revenue collection

APPENDICES

APENDIX I: LETTER OF INTRODUCTION

JKUAT/KESRA

P.O.BOX 48240-00100

NAIROBI.

Dear Respondent,

RE: ACADEMIC RESEARCH QUESTIONAIRE

I am a student at the Jomo Kenyatta University of Technology / Kenya School of Revenue Administration undertaking a Post Graduate Diploma in Customs Administration. As Part of the requirements, I am carrying out a research study on: **The influence of system operational efficiency in revenue collection in Kenya: a case of Malaba border customs office** .This research is significant as it will give an insight on into the impact of system operational efficiencies at the boarder points in Kenya. The results of this study will provide KRA management, the government and researchers critical information on system performance and will help enhance revenue collection at the boarder points.

This is an academic research and confidentiality will be strictly observed and your name will not appear anywhere in the report. Kindly spare some time to complete the questionnaire attached.

Thank you.

Yours Sincerely,

Rebecca Asimu Omido

HDB335-C016-2438-2016

APPENDIX II: QUESTIONNAIRE

I am conducting a research for my Post Graduate Diploma in Customs Administration in Jomo Kenyatta University of Agriculture and Technology. The study is on the influence of system operational efficiency in revenue collection at Kenya Revenue Authority: a case of Malaba border customs office. Kindly participate in this research by filling this questions that suits you based on the simple instructions provided.

Section A: General Information (please indicate with an x or √ to indicate your response)

Please indicate your gender.

Gender	
Male	
Female	

What is your age bracket?

Age	
Below 20	
21 – 30	
31 – 40	
41– 50	
Above 50	

What is your highest education level?

Education Level	
Primary school	
High/secondary school	
Professional diploma /Tertiary college	
University degree	
Post graduate education	

How long have you dealt with Malaba border customs office?

Less than 1 year	
1 - 2 years	

2 - 3 years	
More than 3 years	

Section B: Extent to which Accountability in System Operational Efficiency in Revenue Collection

Does the system operational efficiency reduce cost in revenue collection?

Yes [ ] No [ ]

If Yes, please explain

……

……

……

6. Please rate your agreement with the following statements on the accountability in system operational efficiency and revenue collection: (Scale: 1= 'strongly disagree', 2= 'disagree', 3= 'neutral', 4= 'Agree' and 5= 'strongly Agree')

Statements	1	2	3	4	5
The infrastructure set-up of the system is not expensive					
There is a reduction of operating costs with the introduction of ECTs					
Penalties and fines due to late delivery have reduced					
There is realization of more revenue with introduction of ECTs					
Cost reduction with the reduction of organization processes					

7. In your opinion, which would be the most effective way to reduce cost in revenue collection through system operational efficiency?

……

……

……

Section C: Influence of work flow in system operational efficiency in revenue collection

Does system operational efficiency influence work flow in revenue collection?

Yes [ ] No [ ]

If Yes, please explain

……

……

……

9. Please rate your agreement with the following statements relating to work flow in system operational efficiency and revenue collection. (Scale: 1= 'strongly disagree', 2= 'disagree', 3= 'neutral', 4= 'Agree' and 5= 'strongly Agree')

Statements	1	2	3	4	5
Cargo theft has reduced drastically					
Cargo dumping has been reduced drastically					
With the reduction of cargo dumping, infant business are now safer					
Reduction of dangerous and harmful cargo entering and/or leaving the country					
Reduced loss of cargo along the transit routes with the introduction of ECTs					
The reports generated can be saved and used in any Microsoft format making it easier to work on the data					
The software is able to store information and make it available even when offline					

10. In your opinion which would be the most effective way to improve work flow in revenue collection through system operational efficiency?

……

……

……

Section D: Influence of ease of doing business in system operational efficiency in revenue collection

11. Does system operational efficiency influence ease of doing business in revenue collection?

Yes [ ] No [ ]

If Yes, please explain

……

……

12. Please rate your agreement with the following statements on ease of doing business in system operational efficiency and revenue collection. (Scale: strongly disagree', 2= 'disagree', 3= 'neutral', 4= 'Agree' and 5= 'strongly Agree')

Statements	1	2	3	4	5
The system is compatible with the other set-up organizational systems					
The system is able to easily merge with the systems for the neighboring countries					
The ECT system is able to pair and works well with android systems					
The system allows multiple users to be online and work at the same time					
The systems allows for tasks to be handled faster at the different stations					

Accountability

	Yes	No
The system is able to capture data of all outbound trucks		
The system is able to report a violation on a real time basis		
Vehicle and cargo documentation is captured and stored on the system		
Collection of duties and taxes is made easier		
Clearance of cargo trucks at the border is made faster with the system		

Safety

	Yes	No
Cargo theft has reduced drastically		
Cargo dumping has been reduced drastically		
With the reduction of cargo dumping, infant business are now safer		
Reduction of the entry of prohibited and restricted goods, into the country		
Reduced loss of cargo along the transit routes with the introduction of ECTs		

Section E: Revenue Collection

Please indicate the revenue collected in the years indicated

	2015	2016	2017
Amount of revenue collected			

12. Please rate your agreement with the following statements on revenue collection. (Scale: strongly disagree', 2= 'disagree', 3= 'neutral', 4= 'Agree' and 5= 'strongly Agree')

Statements	Strongly disagree'	Disagree	Neutral	Agree	strongly Agree'
The border has archived their target on revenue collection					
Compliance has improved					
Has performance appraisals brought about results based management in customs department					
Penalties imposing has been enhance leading increased revenue collection					
Efficient auditing has improved revenue collection					