

**CUSTOMS MANAGERIAL PRACTICES, SMUGGLING AND TRADE
FACILITATION AT INLAND CONTAINER DEPOT IN NAIROBI, KENYA**

BY

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DECLARATION

Declaration by Candidate

This research project is my original work and has not been presented for a degree in any other University for examination.

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DEDICATION

I humbly dedicate this research project to my family for their unconditional encouragement, financial and moral support.

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First and foremost, I give thanks to the Almighty God for giving me the strength and endurance through this journey and making it possible. I acknowledge the guidance and intellectual support accorded to me by my supervisors Prof. Michael Korir and Dr. Joel Tuwey. Their critique and scholarly support has given me a better understanding on this project. Their support and step by step guidance has enabled me to reach this far. This was also made possible by my supervisors who created time to give me assistance and guidance through this process.

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ABSTRACT

The growth of international trade is not without obstacles. These barriers include trade costs and tariff barriers, which vary from country to country. International trade at borders, including East African borders, is of particular concern with excessive documentation, lack of transparency, limited use of modern customs techniques, excessive time for permits and permits, lack of coordination and cooperation between customs and other regulatory bodies. This study's general objective was to examine the effect of customs managerial practices and smuggling on trade facilitation at Inland container depot in Nairobi, Kenya. The specific objectives of this study were to determine the effect of customs automation systems, capacity building, and process management on trade facilitation at Inland Container Depot, and to examine the moderating effect of smuggling on the relationship between customs managerial practices and trade facilitation at Inland Container Depot in Nairobi, Kenya. This study integrated the theoretical perspectives of the innovation diffusion theory, resource-based theory and fraud triangle theory. Explanatory research design was applied in the study. The target population for this study was 150 customs officers. A structured questionnaire was used for primary data collection through a census. Descriptive and inferential statistics were used for data analysis. Descriptive statistics included percentages, graphs, means and standard deviations in data presentation. Further, inferential statistics including hierarchical regression analysis helped in testing how the moderating variable affects the relationship between the independent and dependent variables. The findings revealed that customs automated systems ($\beta = 0.228$ $p < .05$); capacity building ($\beta = 0.282$, $p < .05$); and process management ($\beta = 0.295$, $p < .05$) had a positive and significant effect on trade facilitation. Results further indicated that smuggling ($\beta = -0.368$, $p < .05$) had a negative and significant effect on trade facilitation. In addition, the interaction effect of smuggling and customs automated systems was positive and significant ($\beta = 1.955$, $p < .05$). On the other hand, the interaction effect of smuggling and capacity building was positive but insignificant ($p > .05$). Similarly, the interaction effect of smuggling and process management was positive but insignificant ($p > .05$). The study concluded that customs managerial practices contribute significantly to improved trade facilitation. The study also concluded that smuggling significantly reduces trade facilitation. Further, the study concluded that smuggling moderates the relationship between customs automated systems and trade facilitation. However, smuggling does not moderate the relationship between capacity building, process management and trade facilitation. The study recommended the need for management of Inland container depot to strengthen aspects on customs automated systems, capacity building and process management. The study further recommended the need for key stakeholders including the government of Kenya, customs and border control departments, traders, clearing and forwarding agents to review the anti-smuggling policy.

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OPERATIONAL DEFINITION OF TERMS

Capacity Building; is a concept that has different meanings for different people, but in general relates to enhancing or strengthening a person's or organization's capacity to achieve their goals (Lusthaus, Adrien & Perstinger, 2013).

Customs Automation Systems; The development of secure systems architectures for customs processing in order to provide the opportunity to integrate and harmonise the customs regulatory process with the business processes of traders, shippers, logistics providers and other stakeholders in international trade (WCO, 2015).

Customs Officer; An agent who operates on behalf of the government in order to enforce customs laws and regulations (KRA, 2018).

Process Management; Business Process Management is an approach which helps organizations to align their strategic objectives with their operational goals of increasing effectiveness and efficiency in the dynamic business environment. The objectives of any organization are achieved by a set of business processes that should be continually improved. BPM is a combination of practices that focuses on driving organizational value through a process-oriented culture (Palmberg, 2017).

Smuggling; refers to the importation, exportation, or carriage coastwise, or the transfer or removal into or out of a Partner States, of goods with intent to defraud the Customs revenue, or to evade any prohibition of, restriction on, regulation or condition as to,

such importation, exportation, carriage coastwise, transfer, or removal, of any goods (EACCMA, 2004).

Trade Facilitation; is a mechanism to simplify, modernize and harmonize the processes of exports and imports. More broadly, trade facilitation includes improving transportation infrastructure, eliminating government corruption, changes in non-tariff barriers, reduction in customs tariffs, export promotion, and marketing in exports (WTO, 2010).

ABBREVIATIONS AND ACRONYMS

ASYCUDA	Automated System for Customs Data
COMESA	Common Market for Eastern and Southern Africa
DRC	Democratic Republic of Congo
ECOWAS	Economic Community of West African States
ECTS	Electronic Cargo tracking system
ICD	Inland Container Depot
KRA	Kenya Revenue Authority
NAFTA	North American Free Trade Agreement
NTBs	Non-tariff barriers
OECD	Organization for Economic Co-operation and Development
OSBP	One-Stop Border Posts
RADDEX	Revenue Authorities' Digital Data Exchange
RBV	Resource Based View
RECs	Regional Economic Communities
SGR	Standard Gauge Railway
SMEs	Small and Medium Enterprises
TAT	Technology Acceptance Theory
TF	Trade Facilitation
UN/ECE	United Nations Economic Commission for Europe
WTO	World Trade Organization

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter covered the background of the study, statement of the problem, purpose, research objectives, research hypotheses, significance and scope of the study.

1.1 Background of the Study

International trade has become a new order in the global world economy because it guarantees the movement of goods and the factors involved in the production of these goods from one country to another. The effectiveness of this movement largely depends on how trade is facilitated between the participating countries (Hoekman & Nicita, 2017). Trade facilitation is the simplification and harmonization of international trade procedures, these trade procedures become activities, practices and formalities related to the collection, presentation, transmission and processing of data necessary for the movement of goods in international trade (WTO, 2014).

Therefore, it is important to ensure that politicians in different countries understand trade facilitation by including trade facilitation measures in their long-term agenda. Trade facilitation policy objectives can be achieved by national customs administrations, ministries of commerce or other government bodies involved in transboundary environmental management. It has been approved by the World Customs Organization, an active organization with an interest in facilitating trade in the customs world. The WCO has developed a set of tools and recommendations that provide principles for trade facilitation. Notable examples include the Kyoto Convention, which first entered into force in 1974. Trade facilitation includes all agreements aimed at increasing the efficiency of borders and transport and reducing transaction costs

associated with trade flows. These arrangements include transportation and transit, the professionalism of the customs authorities and compliance with international and regional standards (Grainger, 2015).

Despite all the principles laid down by the customs authorities, there are problems that hinder the successful implementation of trade facilitation initiatives. WTO member states face constitutional requirements for treaty ratification, the need to make changes in domestic laws, the challenge of providing detailed implementation costs, and a lack of political interest, all of which pose major challenges to trade facilitation (Grainger, 2015). Trade facilitation is very important as it has led to the emergence of several trading blocks. Some of these trading blocks are the North American Free Trade Agreement (NAFTA), East South Africa Common Market (COMESA), East African Community (EAC) and South African Development Community (SADC) (WTO, 2014). The formation of these blocks has standard customs procedures, such as using a single window system.

Trade facilitation factors, such as efficient telecommunications and good customs administration, are some of the necessary prerequisites for attracting more financial capital. Many developing countries have succeeded in increasing government revenues by modernizing their customs. This has led to better and more efficient methods of collecting international trade taxes. According to Sakyi et al. (2018) increasing trade facilitation in Africa is associated with better social welfare outcomes. This finding is corroborated by the World Bank (2011), which emphasizes that trade facilitation is very important to improve the social welfare of the people in African countries, especially the poor, because it lowers the cost of trade by lowering the prices of consumer goods. UNECE (2015) further argues that trade facilitation will stimulate economic profits by lowering trade costs, thereby increasing business efficiency and effectiveness.

Reducing trade costs will increase productivity growth for local firms, which are more likely to export, while existing firms will increase trade.

Trade facilitation has been a feature of WTO negotiations, supply chain security, capacity building and tariff modernization programs. The goal is to find improvements in the trade and customs environment and reduce transaction costs between businesses and governments. Both companies and state actors can benefit from the objectives of simplification, harmonization, standardization, and modernization of trade facilitation. However, the international trading environment is complex and implementation of trade agreements can take longer in some countries than in others (Hosseini & Bozorgi, 2020).

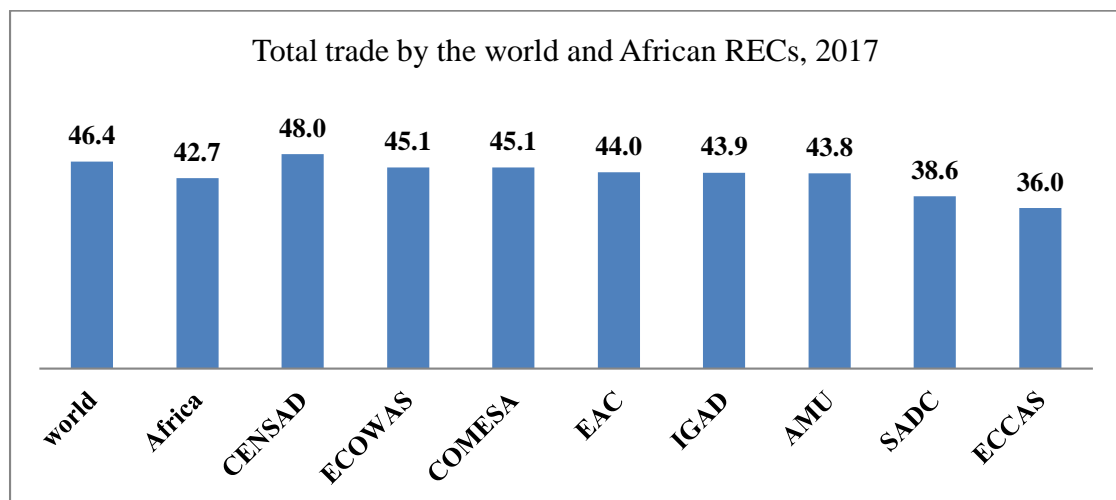


Figure 1.1: Total trade by the world and African RECs 2017

Source: UNACTAD COMTRADE

According to Joof and Isiksal (2021), international trade is trade between or between countries that involves export and import activities. The existence of international trade cannot be separated from differences in the nature and ability of a country to produce a product. Therefore, all countries will unknowingly depend on other countries. Thus, the economic activities of a country cannot be separated from external economic conditions (Turkson, 2015). The positive impact of international trade is also felt by countries in

Asia and Africa which have been designated as third world countries. Countries in the Association of Southeast Asian Nations (ASEAN) region also feel the impact of international trade.

The formation of the ASEAN community is proof that the Southeast Asian region has opened an investment market and a free market, or in other words, an open economy. Despite fluctuations and declines in 1998 and 2008 due to currency and global crises, the reported economic growth is the result of international trade (APEC, 2001).

Trade facilitation is highly valued worldwide. For example, the European Union has largely removed internal borders between its 27 members. As a customs union, they share the same external rates and adhere to the same customs laws. Other reforms are currently being implemented to review customs procedures and achieve interoperability between the customs systems of Member States (TAXUD/477/2004).

Many trading blocs have formed in Africa over the last 50 years. Overall, they have been relatively successful in eliminating, or at least significantly reducing, intra-regional trade tariffs. In some cases, the introduction of a common external tariff (CET) and the creation of customs unions (such as the South African Customs Union and EAC) have exacerbated this. In addition, the tariff liberalization process is still active with agreements between other regions such as the Tripartite Free Trade Area. The success of further integration in the form of the elimination of NTB has been mixed. While efforts to create a common market have been made by removing de jure restrictions on foreign suppliers, particularly with regard to partners, this has often been offset by the introduction of new measures that discriminate against foreign companies or suppliers, including those operating in regional trading partners (Geourjon & Laporte, 2016).

In SADC, cross-border difficulties are a significant barrier to intra-regional trade and market integration (Lando, 2017). These difficulties are exacerbated by the relatively large number of SADC landlocked countries: goods traded in the region often have to cross multiple national borders. In this context, increased trade facilitation is seen as an important aspect of trade facilitation efforts within SADC (AECOM International Development, 2011). The origins of modern trade facilitation efforts at the SADC level can be traced back to the introduction of the SADC Trade Protocol in 1996, which focused on simplifying, simplifying, harmonizing and modernizing customs procedures (Annex II) and trade and transit facilitation (Appendix IV).

For example, in the case of customs cooperation, the protocol calls on SADC member states to adopt a common nomenclature for customs procedures, to simplify and modernize their customs procedures, to use a system to evaluate goods in accordance with the World Trade Organization (WTO). systems and work with each other to train staff, transmit information and investigate and deal with customs violations (UNCTAD, 2012). The Protocol was accompanied by the SADC Protocol on Transport, Communications and Meteorology in the same year. Both protocols were preceded by a number of regional trade facilitation measures. This includes the development of coordinated border management (CBM) policies and systems to ensure that most goods handling processes take place “offshore” to minimize disruption to the cross-border movement of goods and people. This led to the establishment of several national and regional windows in South Africa (UNCTAD, 2012).

The EAC is a regional economic bloc between Burundi, Kenya, Rwanda, Tanzania and Uganda. It launched a customs union in 2005 and then transitioned to the general market in 2010. Trade in the East African region is hampered by poor infrastructure, lengthy procedures and a number of constraints. Trade facilitation is widely seen as a means to

achieve closer ties between the EAC economies. As the President of the East African Business Council (EABC) said recently, “Achieving a Common Customs Territory in all its manifestations is an important step towards the full integration of our trade facilitation initiatives” (Wilson & Otsuki, 2016).

The Customs Union aims to eliminate all internal tariffs and introduce CET for goods coming from outside the EAC to harmonize trade and investment standards and procedures; and eliminate NTB in the regions. The Customs Union Protocol also establishes rules of origin and criteria for the national treatment of goods. Therefore, although the Customs Union mainly deals with tariffs, it includes aspects of trade facilitation as they are related to the creation of a common trade area. In a fully functioning customs union, all internal border controls will be minimized or completely eliminated. However, in the EAC Customs Union, national financial authorities do not have a framework to ensure this coordination, especially with regard to revenue sharing. For this reason, EAC countries signed the EAC Single Customs Territory Framework (EACCMA, 2004) in 2013.

SCT aims to achieve an efficient trade process in the region by facilitating trade. As stated in the frame, “The main objective of the Single Customs Territory is to reduce the cost of doing business and increase trade within the EAC by integrating customs processes and reducing internal border controls”. However, the free movement of goods in the region is hampered by the presence of NTB (EACCMA, 2004).

1.2 Statement of the Problem

The need for trade facilitation arises from an increase in trade volume, a decrease in tariffs, as well as the increase and availability of modern technology. Brada and Mendez (2013) define trade facilitation using four indicators, namely port efficiency, tariffs,

regulations, and usage. Trade facilitation is important to reduce the volume and impact of trade on the time-consuming bureaucracy encountered in international trade operations. This is achieved by reducing operational pressures faced by border controls, improving supply chain security and increasing business competitiveness.

The growth of international trade is not without obstacles. These barriers include trade costs and tariff barriers, which vary from country to country. International trade at borders, including East African borders, is of particular concern with excessive documentation, lack of transparency, limited use of modern customs techniques, excessive time for permits and permits, lack of coordination and cooperation between customs and other regulatory bodies. These factors lead to loss of business and high commercial transaction costs. For example, the average release time in a Kenyan port is 6.5 days. The establishment at the port takes the longest time (more than 10 days, with a ceiling of 18 days) compared to the establishment of other border points. According to the Ports Authority of Kenya, the time to clear ports in Kenya is much longer than in developed countries, for example in Belgium it takes 30 minutes and 1 day, respectively. On average, due to customs procedures, the submission of documents up to the processing period for goods to be taken out of the customs area takes a long time (KRA, 2018).

Data from quarterly KPA charter indicated document processing time as of October 2019 was 2hrs against a target of 1hr. The same report also indicates that ICD in Nairobi which has a capacity of 450,000 twenty foot utilized about 93 percent which indicates congestion as the normal operating capacity should be at 70 percent. Delays in cargo clearance at the Nairobi Inland Container Depot (ICD) have increased the cost of importing cargo. A survey conducted by the Shippers Council of Eastern Africa (SCEA) reveals that only 40% of cargo is cleared within the 4-day free storage period,

leaving 60% of the cargo to incur storage costs. The introduction of new technology over the years at the customs department in Kenya is in the process of improving efficiency in document processing, cargo clearance, cargo declaration and scanning of cargo as compared to the old systems which creates a gap that this research seeks to address. This study therefore sought to gain a better understanding of how customs managerial practices have facilitated trade at the Inland Container Depot in Nairobi by focusing on the areas of automation, capacity building, process management and how all these factors are influenced by smuggling by carrying out a quantitative study.

1.3 Research Objectives

The following objectives guided the study:

1.3.1 General Objective

The general objective of the study was to assess the effect of customs managerial practices and smuggling on trade facilitation at Inland Container Depot in Nairobi, Kenya.

1.3.2 Specific Objectives

- i.** To determine the effect of customs automated systems on trade facilitation
- ii.** To examine the effect of capacity building on trade facilitation
- iii.** To establish the effect of process management on trade facilitation
- iv.** To assess the effect of smuggling on trade facilitation
- v.** To examine the moderating effect of smuggling on the relationship between:
 - a) customs automation.
 - b) capacity building and trade facilitation.
 - c) process management and trade facilitation.

1.4 Research Hypotheses

H₀₁ Customs automated systems do not significantly affect trade facilitation

H₀₂: Capacity building does not significantly affect trade facilitation

H₀₃: Process management does not significantly affect trade facilitation

H₀₄: Smuggling does not significantly affect trade facilitation.

H₀₅: Smuggling has no moderating effect on the relationship between

- a) Customs automation systems and trade facilitation.
- b) Capacity building and trade facilitation.
- c) Process management and trade facilitation.

1.5 Significance of the Study

This study may be of significance to the following stakeholders. The stakeholders include amongst others, the national government; researchers; customs and border control departments; traders; clearing and forwarding agents.

The government and its agencies would use the information on policy formulation with regard to trade facilitation. The decisions would be technological in nature, staff capacity as well as ethics. The information is of great important to the national government since they will be able to make legislations on trade based on the available information. For instance, they would tend to make legislations that are enablers of trade as opposed to deterrent to trade. They would be able to take stock of the kind of trade taking place at the customs and the available revenue streams, the challenges and ways to mitigate them and above all provide an enabling environment for trade. The department may also use the report to understand the efficiency of the surveillance

cargo monitoring systems in sealing revenue leakages as this will go along in boosting the country's revenue targets hence financing of the budget.

Researchers and academicians would use the study to build further research on factors that determinant trade facilitation. The same information would also help in building knowledge bank. The research may be of great importance in the future where corroborating the current and future scenarios about trade facilitation and the past as this will form the basis of a benchmark.

Traders at the Inland Container depot may use the information to help them work on barriers that hamper their business within and without borders. The traders may also understand what volumes to import and the implications involved in terms of turnaround time, clearance time and the cost implications. Trade may also use the gathered data to push for better trade agreements with the manufacturers, governments and their agencies.

The clearing and forwarding agents may use the study to make informed decision with regards to projections of the volumes of cargos they are likely to clear within a given time period as this would form their basis of expansions, downsizing and capital investment. The information may also enable them bargain for friendly business dealings with the government and its agencies like KRA and KPA.

1.6 Scope of the Study

This research aimed to determine the effect of customs managerial practices and smuggling on trade facilitation at Inland Container Depot in Nairobi, Kenya. It focused on three factors deemed to facilitate trade including customs automated system, capacity building and process management while smuggling was used as a moderator. The target population consisted of 150 customs officers who were located at Inland

Container Depot in Nairobi. The geographical scope of this study was limited to the inland container depot in Nairobi. The reason for choosing ICD was that it is currently the main hub for trade facilitation as it an extension of maritime deep-sea port and 75% of the international cargo is coming to the ICD via standard gauge railway. The study is anchored on three theories: resource-based theory, theory of innovation diffusion and the fraud diamond theory.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discussed the empirical review of the literature concerning the research topic. A review of the literature on the variables and the research topics was also discussed in this chapter. The literature also gave a theoretical framework used to describe the topic, critique and summary of existing literature as well as a conceptual framework to demonstrate how the variables relate to each other in the study. The chapter then explained the research gap using literature.

2.2 Concepts

2.2.1 The Concept of Trade Facilitation

Trade facilitation includes simplification (reduction of documentation), modernization, standardization and harmonization (customs procedure conformity) trade procedures. The purpose of trade facilitation is to reduce the costs of trade transactions between businesses and governments, and is on the agenda of many customs-related activities (Grainger, 2013). Facilitation measures may include foreign guidelines such as internal business rules and standards that traders must comply with even before exporting and importing goods (WTO, 2017). Trade facilitation also includes supply chain security initiatives, capacity building programs, round negotiations development and customs modernisation programs.

The trade facilitation agreement signed by WTO countries in December 2013 and entered into force in February 2017 provides a framework for strengthening international trade by promoting measures that simplify and accelerate the movement of goods between countries. The agreement, which entered into force in 2017, establishes measures for effective cooperation between customs and other relevant

bodies on trade facilitation and customs compliance issues. It encourages members to provide pre-arrival information on exports to destination countries in electronic format and encourages importing countries to develop capacity to process such information.

The agreement also requires members to establish or maintain a customs control risk management system to avoid arbitrary or unjustified discrimination or veiled restrictions on international trade (WTO, 2014). The World Customs Organization is the active trade facilitation body that oversees some of these programmes. The WCO has developed many guidelines and recommendations covering trade facilitation principles. The most important plan to promote trade facilitation is the revised Kyoto Convention, which entered into force in 2006. It provides efficient customs procedures in the 21st century (WCO, 2007). Not to forget the Doha round of talks this also discusses trade facilitation to aid in faster clearance of goods.

To promote intra-regional trade in goods, the EAC developed the Customs Union Protocol (CU), which entered into force in January 2005. The main objective of this protocol is to increase trade between East African countries. Various aspects of trade facilitation that will be the focus of this study are trade volume, cost and execution time. The main agencies in Kenya facilitating trade are the Customs Office, Ports Authority of Kenya, Kenya Railways, Customs and Freight Forwarders, Ministry of Health, Ministry of Animal Affairs, Kenya Bureau of Standards, and Phytosanitary Services. and health checks in Kenya and drug police.

Key trade facilitation facilities include: Kilindini Port, Jomo Kenyatta International Airport, Nairobi, Kisumu and Naivasha Container Depot, which opened on 1 June 2020, as well as land border crossings such as the Malaba border, which transports goods to and from the Great Shipping Lakes region, including Uganda, Congo,

Democratic Republic of the Congo, Rwanda, and Burundi. This study will focus on the Inland Container Depot in Nairobi (KRA, 2018). Trade facilitation can be achieved through application of international trade laws and rules, application of trade facilitation recommendations (Kyoto Convention) and WCO framework standards and cooperation between the customs authorities and other border agencies.

The Trade Facilitation Indicator is an assessment tool to measure the impact of trade facilitation on trade flows and costs. It is also a monitoring and benchmarking tool, providing an overview of the country's performance, strengths, weaknesses and developments (Aschauer, 2014).

Based on several studies various indicators have been developed over time using surveys from various countries (OECD, 2011). These surveys have become important markers used by researchers to determine the impact of various trade facilitation dimensions. Grainger (2012) came up with indicators on trade facilitation based on information provided by the world competitiveness year book (IMD) and the Global Competitiveness report (WEF). They are used to show the impact on trade. These include Easy of Doing Business, the World Bank's Logistics Performance Index and the World Economic Forum's Trade Facilitation Index. All of these tools focus on efficiency in trade administration, logistics, ports and customs and therefore provide an indication of the effectiveness of the overall trading environment in different countries.

The cross-border business indicator measures the amount of paperwork, time and cost (excluding duties) associated with the export and import of a 20-foot full container cargo by sea. The indicator reflects the total time and cost required to complete the four stages of the export and import process: document preparation, customs clearance, land transportation, and port and terminal handling (World Bank, 2013).

The World Bank's Logistics Performance Index measures a country's performance in the logistics supply chain. It covers six topics: quality of trade and transportation infrastructure, competence and quality of logistics services (transport, forwarding and customs), ability to track shipments, customs and border efficiency, ease of arranging shipments at competitive prices. the price and frequency of Shipments that reach the recipient within the planned or expected delivery time (World Bank, 2013).

The World Economic Forum's Trade Facilitation Index measures the quality of institutions, policies and services that facilitate the free movement of goods across borders. The index covers seven different areas including: work environment, efficiency and transparency of border management, availability and quality of transport infrastructure, access to internal markets, availability and use of information and communication technology, availability and quality of transport infrastructure (World Bank, 2013). Among the indicators to be discussed further include volumes traded, cost and turnaround time.

Increase in trade across the world has led to the increase of the world transportation markets and in particular for the ocean markets to be able to handle freight. Allocation of resources by governments does not only focus on additional volume of cargo but also at the larger cargo ships and how they can be handled at the port (Gregory, 2010).

The global economy today is characterized by easy access to international markets and reduced barriers in trade. In a much more competitive environment, the introduction of cost reducing technologies and more so reduction of transportation costs is important to remain competitive. Technology has significantly reduced transportation costs and facilitated trade; however, this trend has been disrupted by increase in demand and the change in prices (Fayle, 2013). In the past decade ocean freight rates have increased

due to demand in bulk transportation and fluctuation in fuel prices. The growing rate in international trade has led to demand and higher transportation rates such as terminal costs and line haul costs. It is always important for trade partners to understand these changes. Depending on the commodity various strategies will be implemented in order to minimize the cost of shipping a container (Johnson, 2012).

Turnaround is the time the ship will spend at the port. The spent time includes service time which is the point the ship stays berthed and between berthing and departure time. The turnaround time at the port is counted from the time the ship arrives to the time to the time of departure (Schendel & Patton, 2011). This parameter is important as it measures the efficiency of the port.

2.2.2 The Concept of Customs Automated Systems

An automated customs system is one of the most important tools for simplifying the international trade process. Customs automation describes the use of information and communication technology (ICT) in handling customs processes. Automation can support the entire manufacturing process, from submission, receipt and processing of goods and goods declarations for import, export and transit, payment of duties and taxes to the release of goods from customs control (IMD, 2015). One of the principles of the revised Kyoto agreement is the maximum use of information technology in accordance with Chapter 7. In addition, EAC developed the Protocol on Customs Union (CU), which entered into force in January 2005, and simplification, standardization and harmonization of trade information and documentation to facilitate trade in goods (EAC, 2019). Several systems have been introduced by the Kenyan government to implement the simplification and standardization of procedures and they include: samba system, single windows system and the scanning system.

Before 2005, KRA's customs department used a system known as Bishops Office Freight Forwarders Integrated Network (BOFFIN). In 2005 came the implementation of Simba system, which has brought about major gains in Customs clearance process. Simba system was launched in 2005 and was later enhanced in 2014. The KRA Simba system is an application that helps in shipping and clearing goods out or into the Kenya Ports so that operations as a business person or agent are regarded as legal. The Samba system introduces online submission of records and entries, electronic processing, automatic reports and reconciliations, electronic submission of customs entries, automatic duty and tax accounting, and internal accounting. The system also provides an audit trail and eliminates a lot of human intervention, reducing the likelihood of errors or inappropriate practices.

A report published by the Kenyan customs authorities pointed out the various advantages of the Simba system. The report describes how the time required to approve export and import documents has been reduced from five days to one day. Time to leave Mombasa port has also decreased from an average of 17 days to 10-11 days, resulting in a reduction in corruption (UNDP, 2014).

Other private entities using the Simba system argue that there are fewer undocumented fees to pay because fewer "officials" handle their documents and fewer documents are processed. However, the system that handles various customs functions is not without technical problems. They are mainly due to interruptions in network connection services. Automated customs systems should speed up cargo clearance and eliminate corruption at ports, and some bottlenecks in them always lead to accumulation of shipments. This causes further delays for traders and importers (UNDP, 2014). When the Simba system was introduced in 2005, it was unable to immediately resolve the backlog and thus accelerated port handling procedures, which was met with opposition

from some stakeholders. Another challenge is that Simba's system runs across multiple platforms, which KRA says makes it difficult to track cargo from the port of entry through to final approval.

The Kenya International Warehousing Services Association (KIFWA) has filed a lawsuit because members believe the new automated system imposes unfair and expensive requirements such as the need for computerization and training. This reaction was due to opposition to reforms and more to failure to properly regulate the system. However, a consensus was later reached between KIFWA and KRA how to train customs agents and officers on how to handle the system (KRA, 2018). Simba automated system in the customs department has made declaration by customs officers easier and further averaging a clearance of 1,700 containers a day. The Kenya International Warehousing Services Association (KIFWA) has filed a lawsuit because its members believe Simba is making unfair and costly demands such as the need for computerization and training. This reaction was due to opposition to reforms and more to failure to properly implement the new system. However, consensus was later reached (KRA, 2018).

The One Window system allows countries or organizations involved in trade to submit standard documents and information with a single point of entry to meet regulatory requirements for imports and exports, such documents include customs declarations, import/export license applications and other supporting documents such as certificates of origin and commercial invoices (UNECE, 2015). A single window system takes the form of a single unit or an automated system that serves as a central point for gathering and disseminating information. Though they do not necessarily cover all aspects of border agency co-operation, they can support it by facilitating exchange of data and operation of integrated procedures. It should also be noted that there is no single model

for Single Windows; they are tailored to specific national or regional requirements (Marczak & George, 2016).

A single window consists of an organic mix of the combined efforts of all countries involved in that country's international trade activities. Using the latest ICT techniques; international data and communication standards, and a simplified, harmonized and redesigned data exchange information system to replace traditional paper information. It also implements complex rules and procedures for financing, management, business and marketing models, project planning and management, and effective collaboration between all parties involved in the Single Window at every stage. The system also has a risk management module that can be used by various government agencies to manage various aspects of risk involved in cross-border trading. The World Trade Organization (WTO) aims to include a single window in the final version of the Doha Round negotiations by member states (UNCTAD, 2016).

Development of the Kenya National One Window System began in 2005 at the Port of Mombasa. Regulated by the Port Authority and Tax Authority, this system was upgraded to the National One Window System in 2007. Prior to the implementation of the One Window System in Kenya, 4 different permits from 4 different authorities were manually reviewed and approved. These requirements often result in unforeseen delays and inefficiencies, and associated compliance costs. This market failure was later addressed by the Kenyan government (AAEC, 2017).

Kenya's single-window electronic systems include air, rail, road and marine systems. In 2011 the Kenya Trade Network Agency (KENTRADE) was established by the Kenyan government to operate electronic systems with windows from Kenya. The main objective on the agenda is to facilitate international trade in Kenya by reducing delays

and costs associated with clearing goods at the Kenyan border while maintaining control and collection of import duties and taxes on imported or exported goods (AAEC, 2017).

The main goal of the single window system is to reduce cargo time to three days at the port, one day at the airport and a maximum of one hour at the border. This can be achieved by eliminating existing inefficiencies such as: B. inefficient use of space in ports, where waiting times lead to congestion. In addition, Kenya's single widow system provides a single interface between more than 29 government agencies, the private sector, and other actors involved in international trade (UNESCAP, 2012).

The single window system allows applicants to submit documents for processing and receive approval online. In addition, it connects multiple government agencies and automatically collects all relevant permits approved for each particular shipment. The system also allows traders to monitor the progress of various stages of processing. Payment of related fees has been simplified using a single window integrated with the Kenya Tax Administration (KRA) Customs Administration system (KRA, 2018). The introduction of the single window system has made government agencies more efficient by making it easier and easier for agencies to obtain and access permit application forms, process them online, and provide merchants with approved or denied permits. Approval is available in real-time once approved. In addition, the automation of processes and procedures has provided significant convenience and savings as merchant transportation, time and telecommunications costs have been reduced or eliminated. For example, the number of trips between institutions and banks has been significantly reduced (UNESCAP, 2012). In addition, one window has been associated with 22 government agencies issuing various permits and 32 fully automated procedures. Twelve government agencies use a 100 percent licensing system. The

electronic payment system is operational and has optimized the licensing payment mechanism. Finally, a single window system improves revenue collection (Widdowson, 2012).

Customs administrations and other players in global supply chains must continue to build and enhance their capacity to cope with increased volume and travel while enhancing security. Cargo screening is an important aspect of protecting supply chains, security and protecting the public from cross-border organized crime such as terrorism, hazardous materials, and environmental crimes, as well as facilitating legitimate trade. For the past 15 years, the Kenyan Tax Administration (KRA) has used modern cargo inspection tools such as X-ray cargo scanning at the Mombasa port and airport (KRA, 2018).

The use of non-intrusive inspection equipment is consistent with the World Customs Organization (WCO) Safety Standards Framework, which requires non-intrusive inspection equipment and radiation detection equipment to be available and used for inspection and in accordance with a risk assessment. This equipment is required for the rapid inspection of goods and/or transportation means that are high risk without disturbing the smooth flow of legitimate trade. The recent commissioning of three additional scanners donated by China to Mombasa Port is an important step towards closing the revenue flood and combating the import and export of restricted and prohibited goods and further strengthening automation (KRA, 2018). The introduction and use of scanners has increased the port's scanning capacity to 1,000 containers per day. Apart from intercepting contraband, scanners also help prevent criminals from dumping cheap, substandard, and dangerous products into local markets that harm citizens (KRA, 2018).

2.2.3 The Concept of Capacity Building

Various definitions are currently used to represent the capacity building process. They all aim to build or develop capacity within an organization. Capacity building is the process by which individuals, organizations, institutions and communities (individually and collectively) develop the ability to complete tasks, solve problems and set and achieve goals (UNDP, 2014). This definition is broader because it also includes institutions and society. Capacity building helps departments and/or organizations achieve their goals and objectives for improvement and development, and also increases organizational effectiveness (Peteraf & Verona, 2015). Many countries are increasingly realizing the importance of developing trade capacity to achieve effective participation in the world trading system and reap the full benefits of increased access to world markets (WTO, 2017).

Various regional and international initiatives are being taken to help these countries improve their ability to negotiate and implement WTO rules. In particular, the World Customs Organization has held many national and regional seminars on the revised Kyoto Agreement on candidate countries and is planning further capacity building activities in the coming years, such as Customs procedures and techniques in accordance with the revised Kyoto agreement (Ratnike, 2014). The aspects of training and development, knowledge and skills, and experience were chosen to illustrate the relationship between capacity building and trade facilitation and they have been discussed in the subsequent paragraphs.

Training and development is focused on skills and it refers to the extent of formal training provided or consumed by the employee (Lee, 2014). The training does not only focus on the technical areas alone but rather other softer skills such as communication across generations and training on diversity in the workplace areas. The main purpose

of training and development is to improve and facilitate the knowledge, skills and attitudes of employees in order to facilitate the achievement of organizational goals and objectives (Cabote, 2015). On-the-job training can be done in several ways, such as: B. On-the-job training, classroom training and computer-based training. Training in customs is largely related to new automated systems which can be offered through on job training (Lee, 2014).

Employee development programs are designed to achieve specific goals that contribute to employee and organizational efficiency. There are various steps in the development process. This includes reviewing organizational goals, assessing the organization's current management resources, identifying individual needs, designing and implementing development programs and evaluating the effectiveness of those programs, and measuring the impact of training on participants' quality of life (Silva & Kaminski, 2017). Trade facilitation also has a strong development dimension. It has been recognized that trade facilitation is at the heart of improving trade relations in many parts of the world. Given the importance of this, every effort is made to reduce trade barriers and implement initiatives and practices that facilitate and encourage doing business in the region (Levallet & Chan, 2019).

According to Quratulain et. al. (2019) training objectives tell the trainee that what is expected out of him at the end of the training program and the following are some of the training methods required discussed below. Skills' training focuses on job-related knowledge used for new hires and correcting performance defects. This type of training can also be used to retrain and re-educate customs employees incase new automated systems and processes are introduced in customs. Retraining which is another type of training is meant for the maintenance and updating of worker knowledge used for technological innovation & intra-organizational changes. For example, standardization

and harmonization of documentation as per the Revised Kyoto Convention which has led to upgraded to newer technologies especially in logistics which means most countries may require retraining so that everyone learns how to use the new technology in the world trading system (Noe, 2016).

Cross-functional training is used to create downskilling in the workforce to enable employees to work on a greater range of skills. This is for greater planning flexibility and coordination. It involves training and educating employees to perform two or more roles, skills, or tasks that may or may not be relevant to their current job. For example, customs officers can be trained in assessments and clearances and expeditions (Laker, 2012).

Finally, creativity training in customs that uses innovative teaching and learning methods in order to enhance workforce ability to generate new and innovative ideas is important. Generation of new and innovative ideas can lead to reduction of costs and improve efficiency in conducting business in customs (Laker, 2012).

Learning has so many benefits. A strong customs training program is a great way to improve customs reputation and create demand. Customs officials want access to the latest training and development opportunities in the industry. So, by offering different types of customs training such as processes, logistics and supply chain in customs is likely to attract new employees and processes that can enhance trading between regions (Al-Swidi, 2017).

Effective customs training programs in systems such as Samba and ICMS ensure that customs officers have ongoing experience and knowledge. This consistency is very important in understanding a process, product or service. For example, a solid customs training program will ensure your agents and representatives are more likely to provide

a consistent customer experience. Moreover, the most important goal of any trading is financial growth. If you can do it yourself, you don't need workers. Every worker must be properly trained. This contributes to the growth of the country. The most valuable employees are those who are ambitious and have room for growth. By providing customs training to employees, they maximize their skills and can achieve difficult goals that only the most talented and dedicated employees can achieve (Bandura, 2013).

It is inevitable that customs officers will have some kind of weakness in their skills on the job. The good news is there is always room for improvement. A training program allows anyone to strengthen these skills. This ensures everyone on the team is up to date with the latest information and can get their work done day in and day out. With proper training and development, weaknesses can become strengths and employees can excel (Botke et al., 2010).

Logistics and supply chains play an important role in the economy of every country. As in other sectors of the economy, qualified workers in logistics and supply chains contribute significantly to the success of the industry. Knowledge of customs information systems and other processes in global supply chains is increasing rapidly. It is the responsibility of the customs organization to ensure that personnel have the necessary knowledge, skills and abilities to perform certain tasks, such as: B. assessment is required. Moreover, when people need the skills and knowledge they need, they need to be provided at the right time (Burke & Hutchins, 2017).

Knowledge is built on information and its interpretation. However, knowledge is more than just processing information. Therefore, knowledge can be acquired through one's experience, interpretation, knowledge, prior knowledge, and values, which is referred to as tacit knowledge (Kirwan & Birchall, 2015). Knowledge-oriented success factors

in organizations such as habits, as proposed by Gronau in Gronau's Potsdam model of knowledge management, are based on two dimensions.

Ensuring the collective use of knowledge in customs ensures the willingness of employees to use and share available individual and organizational knowledge. This can be done through direct influence or information exchange between employees. Training can be offered as a driving mechanism for controlled transfer of knowledge. Customs can support knowledge sharing among employees by providing appropriate infrastructure that allows access to information and communication channels, such as:

B. Providing training manuals and brochures (download mechanism) (Jeng & Dunk, 2013).

The storage and maintenance of knowledge and information, which includes the support and delivery of structured and systematic knowledge, is essential for the preservation of knowledge. The continuity of knowledge must be ensured by ensuring its reuse. However, storage alone is not enough. Knowledge must be regenerated, exchanged, and deleted from time to time to avoid repetition and duplication of work. Customs databases can be used to store information that can be used for future reference. Knowledge that is no longer relevant must be updated or updated. Inappropriate knowledge should be archived or deleted whenever possible (Sohi & Matthews, 2019).

Despite automation in customs and supply chains management, certain skills are still required in logistics whether it is administrative or managerial such as trucking and warehousing (Anderson & Wincoop, 2014). Skills can be divided into personal and social skills. Personal skills are largely related to cognition such as thinking and knowledge skills while social skills refer to how other people relate. Examples of

personal skills include the desire to continue to learn and the ability to plan and achieve goals. Customs officials need to continuously learn in order to update with the ever-changing customs technologies. Social skills can be identified in networking, listening capability, communication, negotiation, problem solving and decision making (Dalkir, 2015). Customs representatives' poses major skills such as communication and majority rule problem solving that are relevant to their line of work.

Communicating with customs suppliers and customs officials at every step of the process is important. Success in logistics depends on the ability of different countries to coordinate a transaction. You must maintain your composure in a fast-paced environment and remain courteous in stressful conditions. Others are expected to be on standby outside of working hours to respond to problems that arise (Foroudi et al., 2014).

A lot of assignments and tasks in customs organisations are achieved through teams even though team work has been known to presents many challenges (Edmondson & Nembhard, 2016). Teamwork has many advantages, especially in finding solutions to customs problems, such as reducing the length of stay at our ports. The most common is a combination of different opinions to solve a problem. This makes differences of opinion within the team an important topic. The Rule of Majority is a method that allows teams to effectively share the views of their members. In this method, a solution is chosen when there is more support than resistance (Riege, 2017).

Knowledge, skills and abilities gained during the period of work is what defines experience (Schilling, 2017). In the era of standardization and harmonization of customs processes across the globe, success in the organization is driven by human intellectual and capabilities to provide the competitive advantage. Experienced

members of staff in any organizations are responsible for wealth creation (Solas, 2016). In customs experienced officers who are in charge of stations such as declaration and valuation are responsible for ensuring tax levied on imported or exported goods is revenue received by government. Furthermore, experienced employees are more efficient at their work. Efficiency in an organization refers to the performance ratio to the cost incurred by an employee in achieving performance (Solas, 2016). In a recent article it was demonstrated how experienced employees are more effective as they have undergone several trainings in the organization. This results into skilled workers after years of work (World Bank, 2013).

2.2.4 The Concept of Process Management

Process management is a disciplined and systematic approach to documenting, identifying, designing, implementing, monitoring, measuring, and controlling automated and non-automated business processes to achieve consistent and targeted results that are aligned with the strategic objectives of the organization (Hammer, 2014). Once business processes are modeled and tested, they need to be implemented. Business processes can be implemented with a Business Process Management System (BPMS) or without a software system. In the case of using a software system, the platform for implementation should be selected, configured and integrated based on the organizational environment. This system controls performance based on constraints and rules defined in the model. The implementation of the process should then be tested (Glykas, 2013).

Organizations implement process management for a variety of reasons; However, the most important incentive for businesses today is to become more competitive in the marketplace. Through the use of business process management and explicit representation of business processes, organizations can not only expect lower costs and

higher revenues, but also motivate satisfied employees and customers (Lisovsky, 2019). The benefits of BPM fall into three main categories. First, efficiency by eliminating manual data entry, reducing process cycle time, and reducing manual analysis, process management helps organizations operate more efficiently. Second, efficiency helps organizations become more efficient by providing better and faster exception handling. In addition, it supports the company in the decision-making process and ensures that the process is implemented consistently. Finally, the flexibility to use adaptation to change in a controlled manner and provide support when a new business model process is required. Three process management areas in customs will be highlighted in this research mainly through declaration of goods, document submission and the verification of goods.

Customs declaration is an official document that lists and declares goods imported or exported. Legally, a customs notification is an act where a person expresses a desire to place goods under customs procedures (KRA, 2018). A customs declaration is made by the owner or representative of the goods or another person inspecting the goods, which may include the company. The declaration is then presented to the customs office where the goods were or are at present. A declaration has to be presented upon importation because they must go through import customs procedures and goods intended for export that have to go through export procedures. Declarations are usually presented using electronic data-processing techniques although an option of presenting the declaration manually (WCO, 2017).

The main documents supporting the declaration include: Import Declaration Form (IDF), Commercial Invoice, Bill of Lading/Aircraft Invoice, License/Permit (if any), Exemption/Forgiveness Authority (if any), and Packing List. It is fast making a declaration application a matter of minutes. It saves costs in the sense that by

automating the system services can be offered at a much cheaper cost than using a manual system. Furthermore, online declaration saves a lot of time and instead of going to the customs office to conduct this procedure it can be done from anywhere using a Smartphone or a computer (WCO, 2017).

Article VIII: 1(c) of the GATT 1994 discusses the need of reducing complexity in import/export formalities when submitting customs documents. Submission of supply documents can be both electronically and manually. The electronic system has advantages however, it is costly during the implementation stage as both manual and electronic systems are usually still in operation. The main advantages of the electronic submission of documents are it is faster and increases revenue collection plus it reduces transaction costs and it creates the atmosphere of transparency and accountability (WCO Customs Data Model Handbook, 2003). In countries such as Kenya paper-based systems is still in place as shown in the process below.

A customs folder is prepared by clearing agents who are part of the declaration team and a set of documents is dispatched to customs in Mombasa where the documents are endorsed after being checked by customs. Endorsed documents are dispatched to the point of final clearance which is the Port of Mombasa (KPA) or nominated Container Freight Station to the resident customs officers that can include the Inland Container Depot in Nairobi. At the point of clearance, the mode of verification is assigned by customs and executed (KRA, 2018).

X-ray cargo scanning provides a non-intrusive inspection of both goods that are being imported and exported. If the verifier chooses to use scanning the container is loaded on a truck and passed through X-Ray scanning machines either in the port or at the Container Freight Station. If the scanning image shows any irregularities, customs will

usually proceed to do open verification. Irregularities usually mean unreported items or potentially illegal items (WCO, 2017).

To perform a scan, the container is placed on a truck and moved through a scanning machine at both the container station and the port. After the scan is complete but there are discrepancies, Customs will usually continue the inspection. Customs control then places the container, opens it, and undresses it completely. If the inspection is to be carried out at a container transport station, the entire cargo must be transported there by the station operator.

The customs file is prepared by a clearing agent who is part of the declaration team and a set of documents is sent to Mombasa Customs where the documents are certified after Customs verification. Approved documents must be sent to the final release location, that is, Port of Mombasa (KPA) or designated container transport station, to local customs officials, which may include domestic container depots in Nairobi. At the time of release, the control regime is determined and implemented by customs (KRA, 2018).

A set of documents is prepared and sent to the so-called "Long Room" at the port. In the long room, the verification process begins. The contents of the container must be verified and match the manifest sent by your transport line to the Simba Tradex and KWATOS systems. Any non-compliance will result in delays, penalties and, in some cases, litigation (KRA, 2018).

If the results of the supervision procedure show an abnormality, usually the customs officer will carry out a thorough inspection. In situations where your container contains multiple items of all types, your container will likely be sent for manual inspection. Here your container is opened, de-coated and every item is carefully inspected.

Once the cargo has been verified and cleared then the customs officials will give an order to release the cargo. Cargo inspection is carried out as follows: goods on the red lane are 100% inspected, goods on the yellow lane go through a cargo scanner and complete document inspection, goods on the green lane are issued directly, and goods on the green lane are inspected. released for distribution channels are subject to an ex-post verification procedure (PCA) based on a risk-based approach (KRA, 2020).

2.2.5 Smuggling as a Moderator

Smuggling holds a huge significance in world trade. Many economies around the world demonstrate that the prohibition or restriction of certain forms of trade often creates economic incentives and opportunities for illicit trade and smuggling (Coyne, 2018). Smuggling is the illegal smuggling and smuggling of goods and/or people across national borders. Modern smugglers use intelligent, flexible and covert logistics methods, means and systems to smuggle illegal goods across national borders to avoid the risk of detection and confiscation (Luong, 2020).

Bidin, Sinnasamy and Ismail (2016) describes three types of customs smuggling. The first type is misstatement of value (price or quantity) of goods on customs invoices. The second type is misrepresentation of the nature (eg silk being declared as cotton) of the goods – a case of “understatement”. The last type is to combine different items and express them as a whole. These three types of smuggling will be discussed in literature to show moderation on the relationship between customs managerial practices and trade facilitation.

High taxes and restrictions have forced many traders into illegal trade that is smuggling. Taxes lead to practices such as under invoicing. In addition, high taxes and other trade restrictions lead to disparity in price in both international and domestic markets which

causes a markup in imported goods which creates an avenue for tariff evasion and illegal imports (UNODOC, 2019).

Reduction of unemployment due to economic growth is more likely to increase the purchasing power of both legal and illegal products. Decrease in unemployment creates demand for the purchase of illegal products. This is so because those who are unemployed tend to look for cheaper opportunities with the informal economies hence engage in illegal activities (WCO, 2015).

Smuggling is closely related to the evasion of tax and import duties, money laundering and corruption. The extent to which legal action can be taken depends on the country. Individuals engage in these kinds of practices for profitability. However, some institutions are trying to making smuggling less profitable by using the index of rule of law from the world governance indicators. The rating ranges between -2.5 and 2.5 with the higher values indicating a stronger police and judiciary system (WCO, 2015).

Customs value is a customs procedure used to determine the customs value of imported goods. When the duty rate is ad valorem (comparable to the estimated value of the goods or transactions involved), the customs value is very important in determining the duty to be paid on imported goods (WTO, 2017). In accordance with Article VII of the GATT 1994, except in certain circumstances, it provides an estimate based on the actual price of the item being valued, which is usually indicated on the invoice. The article further divides the assessment of the following points, to be applied in a specified hierarchical order: transaction value (Article 1), transaction value on identical goods (Article 2), transaction value on similar goods (Article 3), deductive method item 5), calculate method (item 6) and fallback method (item 7). Three areas will be discussed

in the literature to evaluate how they affect trade facilitation namely undervaluation of goods, wrong declaration and cargo consolidation.

The low value of goods imported from any country is a process that participants in international trade observe every day. The reasons why goods exported from certain countries are accompanied by intentionally understated invoices do not reflect the true value of the goods are not yet fully understood. The practice is very common under invoicing and lack of proper valuation process which can be implemented through capacity building (Tsingou, 2014). Further, Boyce and Ndikumana (2015) identified the discretionary power of customs authorities as a major issue with customs valuation process. Most of these authorities do not adhere to the set guidelines of the valuation process which eventually leads to undervaluation. Hummels and Schaur (2014) argue that some importers tend to assume higher prices when importing their goods. This enables importers acquire excess foreign exchange in the official market and resell in the black market. According to Hummels and Lugovskyy (2016), the lack of implementation of global tariff agreements is the main reason for underestimation, especially in developing countries. They provide capacity building in the form of computer systems and databases for stable implementation of the agreement as there is no suitable administrative environment in these developing countries.

An article published in the business daily in 2108 indicated the most common practice of undervaluation was misinvoicing. Misinvoicing occurs when imports and exports are misquoted in order to avoid paying custom duties. In order to curb this malpractice, the Kenyan government enlisted the services of Accredited Economic Operators (AEO) which are companies that have a proven track record of submitting the correct invoices.

According to the Revised Kyoto Convention a declarant is any person who makes goods declaration while goods declaration is a statement made by the concerned person prescribed by customs. A goods declaration can either be lodged manually or electronically. In order to facilitate international trade all, the customs declaration forms have to be standardized as per the agreement in the Kyoto convention. The layout informs the size and the amount of data to be entered in the declaration form and this includes all the contracting parties (Lusthaus et al., 2013).

Making wrong declaration on goods involves importation or exportation of goods secretly in violation of the law while at the same time avoiding paying of duties. There are various reasons for providing wrong declaration (Li, & Wilson, 2015). For instance, a company or individual may provide wrong declaration to avoid inspection, to reduce the assessment and tax imposed and avoid government scrutiny on imported goods that require licenses among other documentation required. However, if the wrong declaration is made unintentionally then customs is ready to make the corrections as long as the company acknowledges the error as soon as possible. For instance, in 2019 tax officials in Mombasa seized three high end vehicles for tax evasion. Customs officials said the vehicles had been declared as household goods and personal effects (Blyde & Iberti, 2016).

Most of the wrong declarations are caused by the lack of knowledge and understanding of customs procedures and processes (Hillberry & Zhang, 2015). In this case a warning can be issued and a potential fine presented. Secondly, by providing clear communication on the necessary steps that needs to be taken in following the proper channels when making a declaration this will greatly reduce the potential of wrong declaration. Latest custom laws and regulations should also be provided with

interpretation to avoid any conflicts and misunderstanding. Finally, timely communication with customs is necessary. This can be achieved by ensuring that customs officials are informed of decisions in customs procedures and that they are assisted by the local customs office. For example, if a company has concerns and questions about how to declare a new product, prior communication with customs officials will ensure the accuracy of the declaration and avoid inaccurate and erroneous declarations (WTO, 2014).

In shipping consolidation, small shipments are consolidated into one large shipping container. In international exports, it is common to pack or pack several small shipments into one large shipment for distribution to the same final destination. Instead of individual companies paying high shipping costs and dealing with slower shipping speeds, shipping consolidation (sometimes referred to as shipping consolidation) involves placing goods from multiple shippers in a common shipping container (ECCMA, 2004). Consolidation comes in two forms.

FCL is a type of consolidation whereby the cargo being shipped occupies a full container (of any size). Transportation normally uses these modes of transport – land by rail, ferry and/or sea transport. LCL is a type of consolidation is used to merge small groupage consignments. The goods are transported in the same container despite being from different traders. The mode of transport is groupage shipments of partial loads for import and export from and to various destinations.

Cargo consolidation is advantageous as it is less costly; it is easy to manage the entire shipping process, improved shipping flexibility and better time management (Yang, 2015). In an article that appeared in the business daily in August 2017 the Kenyan president faulted consolidators for delays of containers at ICD which is largely

contributed by some consolidators trying to evade taxes through the importation of counterfeits. The main challenge can be attributed to the lack of a unified system to regulate the movement of international containers (UN, 2002). Many security issues in the container transportation chain are related to domestic freight forwarders and freight integrators operating in the first and last links. Addressing the security of the container transport chain requires a comprehensive intermodal framework that integrates measures across the container transport chain. In Kenya for instance all consolidators are required to register with the Kenya Bureau of Standards and the Kenya Revenue Authority as a means of curbing those trying to evade taxes through cargo consolidation (KRA, 2018).

World Customs Organisation capacity building initiatives are vital in combating counterfeits. They entail sharing of information among various government agencies as well as training on various Intellectual property rights capacity-building programme, which includes coordinating law enforcement operations and developing technological tools for field customs officer (WCO, 2017). Further, the government of Kenya will register all import and export consolidators in order to curb tax evaders. Kenya already has in place the Anti-Counterfeit Act No.13 of 2008.

2.3 Theoretical Framework

This study is grounded on the resource-based theory, theory of innovation diffusion and the fraud diamond theory.

2.3.1 Theory of Innovation Diffusion

This study adopts Everett Rodgers' innovation theory to describe various aspects of customs automation. This theory is based on the notion that adoption of an innovation involves the spread of new ideas. Diffusion in this theory is considered as a process of

exchange of information among members (Rogers, 1995). This theory further states that new innovation is communicated over a period of time through various channels. The theory consists of characteristics of innovation itself. Rogers (2003) argues that characteristics and attributes of innovation are important in determining the manner of diffusion and the rate at which adoption takes place. He further notes that final adopters tend to perceive attributes as the most important thing. Rogers outlines five important characteristics that were used in this study to show how they relate to trade facilitation especially in the area of customs automation.

Relative Advantage-Rogers (2003) contends that relative advantage is expressed in terms of profitability. New systems such as cargo tracking, ICMS, scanners and online declarations used at the port prevents delays, reduces costs and makes access easy thereby reducing the overall cost of doing business.

Compatibility- This is the degree to which an innovation is perceived to be in line with the existing past experiences. Slow manual processes and cargo handling services that have made trade facilitation face difficulty can improve through automation of these services. Having systems such as the single window, Simba and iCMS simplifies the past experiences and increases efficiency.

Complexity- Complexity is a stage at which an innovation is difficult to use and understand. According to Rogers this type of innovation is unlikely to be quickly adopted. This scenario can happen if customs employees are worried about their job security and sometimes may try to sabotage the system. Alternatively, a new system can be challenging to use at the beginning.

Trialability- This is the degree to which an innovation can be subjected to experimentation. For instance, the Kenya port has had its automation systems evolve

from KWATOS (2008), Simba (2004/2005) to finally iCMS. These systems have evolved over the years to the most recent which is more intelligent and factors in risk management.

Observability- According to Rogers (2003), the final characteristic states that innovation which is visible to others is more likely to be adopted. New functionalities at the port such as scanners are available for all to see. These measures can easily be adopted by truck drivers as they see this as fast means of cargo clearance which saves costs by avoiding delays.

2.3.2 Resource Based Theory

Resource based theory, as a theory associated with capacity building enabled the research to comprehend the effect on trade facilitation. Barney (2010) defines the Resource-Based View (RBV) theory, in which outsourcing decisions are based on the client firm's ability to invest in internal capabilities and thereby gain a competitive advantage. The basis of the resource-based view is that successful companies will find their future competitiveness through the development of distinctive and unique capabilities that are often implicit or intangible (Grant, 1996).

Capabilities simply refer to what the company can do with the resources it possesses which is a key concept in the theory. Tangible and intangible resources are important when considering the resource-based theory. This study will focus on the intangible resources which include knowledge and skills, experience and training and development that build capacity. Organizations such as customs that wish to achieve long term competitive advantage need to develop their intangible resources (Grant, 1996).

Capabilities expand over time and improve capacity in organizations. For instance,

when the Kenya Ports Authority implemented the automated system, KWATOS in 2008 they had to build capacity through on job training of their employees which is still an ongoing process as new technologies arise. In addition, the Kenya Ports Authority has had to develop dynamic capability which is the ability to create, improve and update new capabilities especially in relation to the ever-changing environment such as technology and skilled man power. An organization that enjoys dynamic capability is experienced and skilled at continually adjusting its capabilities to suit the environment and for this case it's the implementation of the Kyoto Revised Convention principles such as coordination of border agencies and simplified customs procedures (KRA, 2018).

2.3.3 Fraud Triangle Theory

This study incorporated the fraud triangle theory by Donald Cressey. The theory states that before an individual commits fraud there are certain elements that are available to enable the process which are pressure, opportunity and rationalization. The fraud triangle was later extended to include capability (Wolfe & Hermanson, 2004).

Research has shown that the most common type of fraud committed under pressure is cheque and credit fraud (Schuchter & Levi, 2015). For instance, the international chamber of commerce whose major objective is to facilitate international trade has two uniform trading practices. Incoterms published in 1936 which specify responsibilities of buyers and sellers involved in credit transactions and the Uniform Customs and Practice for Documentary credit that governs trade transactions. Documentary credit list includes bill of lading commercial invoice among others that can lead an employee to perform fraudulent offences at the work place (Levi, 2014).

Opportunity is the second element in the fraud which is necessary for fraud to occur. An opportunity is created when there is lack of governance and control in the organisation which creates a weakness and allows employees to commit fraud (Duffield & Grabosky, 2013). Specifically, weak internal control systems are the most vulnerable as they are easily manipulated and provide opportunities to fraudsters because they are less detectable (Donelson *et. al.*, 2017). Two aspects that are required by the employee to commit this kind of fraud are general knowledge and technical skill. Having general knowledge of the trading systems such as filing, exchanging and processing customs information including the most advanced ones that allow traders to pay duties online and submit relevant documents can allow an employee to take advantage of his or her position. On the other hand, technical skills refer to the skill required to commit fraud such as smuggling. Both knowledge and technical skill can disadvantage the organization if the employee has desire to commit fraud (Free, 2015).

Rationalization is also a frequent occurrence. Company employees may feel the need to commit fraud because everybody else is doing it. Others may be pushed into fraud by the managers since they both have the same agenda (Maulidi, 2020). Employees are most likely to engage in smuggling of goods to make more money since everybody else is doing it or may consider it as not being a criminal act (Murphy & Dacin, 2011).

For fraud to take place, the employee must have the capability to commit fraud (Wolfe & Hermanson, 2004). Further, in their research they state that opportunity opens the door for fraud while pressure and rationalisation draw the person to it and only then will employees with capability will be able to detect the opportunity and take the advantage. This makes capability a vital component in fraud. For instance, employees who are intelligent later exploit the internal trading systems to their own advantage (Rabeea *et al.*, 2018).

2.4 Empirical Review

The following section presented a review of recent studies on the relationship between customs managerial practices and trade facilitation. In addition, smuggling was discussed as a moderator between customs managerial practices and trade facilitation. The presentation was in accordance with the research objectives.

2.4.1 Customs Automated Systems and Trade Facilitation

Automation is a powerful tool to facilitate trading. In a study conducted by Schware and Kimberley (2013) to identify the factors that make trade facilitation through the use of IT successful, the study found that affordable information and communication technology significantly improves business performance. Furthermore, the study states that this is only possible if the technology is accompanied by simplified documentation, adequate training and local experience, and reliable and cost-effective communication infrastructure. Another study by Duval (2014) argues that creating a single-window system based on IT and a modern risk management system guarantees higher returns from trade facilitation. This view also holds that trade and transportation facilitation is important for developing countries to take advantage of global manufacturing opportunities and change trade patterns (UNCTAD, 2006).

According to waters (2012) who researched on e-customs and new information technology systems in customs in Romania, results indicated that customs officials were able to monitor trade, increase revenue and reduce fraud. The study used a questionnaire that comprised of a likert scale to collect data. Automation has not clearly been used in understanding how it facilitates trade. In many studies IT is not defined clearly in recent studies being carried out. For example, the Global competitiveness report (2018) rates the efficiency in customs and not whether automation plays a major

role. This study intended to fill this gap by closely scrutinizing the role of automation in trade in customs and how it facilitates trade.

2.4.2 Capacity Building and Trade Facilitation

Customs capacity building involves acquiring the necessary skills, competencies, tools, procedures and resources to increase administrative capacity to carry out their duties. Capacity building initiatives should address country-specific needs and be designed to address the socio-economic and political aspects of any customs administration (WTO, 2014).

Research conducted by various international organizations has shown that commitment is a major component in capacity building programmes and without long term commitment capacity building efforts are likely to be unsuccessful. Commitment from various countries can be done through the allocation of human and financial resources. The study goes on to note that it is still difficult for most countries to show commitment through provision of human and financial resources (WTO, 2014).

In a study conducted by the WTO (2011) some of the perennial challenges facing capacity building recipients and providers are the poor level of co-ordination and communication between national, regional and international donors leading to duplication of effort in certain areas and little or no attention to other strategically important areas of customs administration. More studies from WCO in recent years show there has been improvements designed to increase coordination in capacity building delivery between different donors. For example, the WCO Secretariat recently was involved in discussions with one Member administration where six different national and international donor organizations were all offering significant capacity building programmes to the administration. In such cases, the WCO may be able to play

an important co-ordination and facilitation role. Few studies have been done in the area of capacity building in customs. This study explored how capacity building specifically in the areas of knowledge, skills and training has facilitated trade in the East African Community through the Inland Container Depot in Nairobi.

2.4.3 Process Management and Trade Facilitation

Business process management is a best practice management principle that helps organizations maintain a competitive advantage (Palmberg, 2017). Trkman (2013) states that organizations should focus on core processes that provide value to customers. In a study by Neubauer (2019) found that Business Process Management (BPM) enables organizations to achieve rapid organizational adaptation, such as: B. introduction of new technology by customs. Further study by Liu et al. (2019) show that business process management enables organizations to create dynamic collaboration and flexibility to synergistically adapt to changing global market conditions. In addition, BPM ensures the continuous development and improvement of the company's strategy, keeping the company focused on generating value for customers while increasing productivity.

Neubauer (2019) argues that although BPM is one of the most important governance issues as it allows organizations to flexibly adapt to changing business needs, only a small number of organizations take a full-fledged approach and achieve the status of a process-oriented organization. This is underscored by the slow implementation of the principles of the revised Kyoto agreement. Bandara et al. (2015) view in their study stakeholder involvement in information procurement, model expertise, project management and support for enterprise management as success factors in business process management. The need for top management involvement, the relationship

between BPM and organizational strategy, the careful relationship between IT and business strategy are important factors for business success.

A study conducted by Martinez (2019) showed that a process improvement approach enables organizations to integrate digital elements into their processes. This procedural approach encourages organizations to improve their business models by incorporating new digital elements. The results of the study confirm that refining the process is a mandatory requirement for the introduction of new technologies. Despite the growing number of scientific sources on the topic of IT-based BPM, BPM is essentially a management concept and IT is a peripheral area. In addition, the study notes that BPM is currently being treated as a “missing environment” between business strategy and IT. BPM seems to need to translate strategy into business processes for consistent and effective management.

2.4.4 Smuggling and Trade Facilitation

The smuggling of goods is part of the country's economy, which aims to exploit loopholes in customs and border procedures. A study on the smuggling of goods and currencies conducted by Baltagi and Xiong (2012) examined the impact of the level of tariff protection and its relation to the smuggling of goods, and the results showed that importing goods at lower tariffs would lead to a decrease in imports and a reduction in the smuggling of goods. In a study carried out by Schneider and Enste (2016) in which they determined the factors influencing the shadow economy in the Baltic countries including Latvia, Lithuania and Estonia using a questionnaire, it was determined that in Latvia the shadow economy was thriving well due to the entrepreneurs and employer's dissatisfaction with the government and the lack of trust in their taxation systems. Teobaldelli (2014) also illustrated how smuggling influences economic development which further leads to fair distribution of resources in the population.

However, in the long term this tends to lower sustainable development, equality and economic growth. Pedersen (2015) carried out a study on the impact of smuggling and shadow economy on the quality of life in 150 counties across the globe between 1999 and 2000. The studies revealed that despite increase revenue from the shadow economy, there was a tendency in the reduction on the life expectancy and the quality of life. Very few studies have focused on smuggling of goods across the east African region. This study focused on smuggling of goods in customs to increase knowledge in the area of smuggling and its effects in East Africa.

2.4.5 The Moderating Role of Smuggling

Commodity smuggling not only harms the government's supporting objectives, but also loses the effectiveness of the government's tariff and non-tariff policies. Although smugglers do not pay the government, this reduces investment in industry and hinders trade between countries (Amin & Hoppe, 2013). Customs is the most important in the regulation of foreign trade and is a key in the supply chain of international trade. In addition, customs are responsible for evaluating and monitoring the cross-border traffic of goods. This is done to facilitate foreign trade by implementing regulations and control measures that harmonize customs procedures and systems (Africa & Ajumbe, 2012).

Domestic smuggling shows an imbalance in the domestic economy, a mismatch between domestic supply and demand, a decrease in production and supply of goods and an increase in their price. This leads to a demand for foreign goods, which weakens the domestic economy. High tariffs on goods and strict regulations and formalities justify unauthorized imports of goods. It is clear that the smuggling of goods is quite economical and that economic tools and related mechanisms need to be used more

broadly to meet this challenge. The right policies and proper implementation are prerequisites for combating smuggling (Berg, 2015).

In a study conducted by Azam (2017), which focused on trade creation and trade diversion at customs, he found that smuggling can increase trade flows, which in turn leads to trade creation, but also diversion of legitimate trade from illegal smuggling. However, Bhagwati and Hansen (2016) argue that smuggling is generally dangerous because their model is dominated by trade diversion, as seen in the customs technology adopted by various countries. Deardorff and Stolper (2017), using the same methodological framework, argue that in most African countries which have heavy government policies such as tariffs, trade creation tends to dominate through smuggling as most people try to evade customs tariffs set by the government. Furthermore, according to Deardorff and Stolper (2017), they find that smuggling is associated with higher real resource costs than those associated with legal free trade imports. Some of these costs could be due to customs efforts to curb smuggling. This study sought to determine whether smuggling wipes out legal trade in customs or it creates a parallel trading system that works simultaneously with legal trade.

2.5 Critique of Existing Literature

The literature on trade facilitation at the Inland Container Depot in Nairobi sought to address how customs automation, capacity building, process management and smuggling affect trade at the Inland Depot in Nairobi by conducting a quantitative study using a questionnaire. The research problem being addressed is to determine how automation, capacity building, process management and smuggling do influence trade.

Customs automation systems have been one of the factors that affect trade due to the rise of push and pull factors of technology such as the need to embrace technology but

this endeavor still rather expensive in the developing countries. As much as technology has improved the trade processes such as document submission it remains difficult and expensive to adapt to such technology especially in the developing countries. Argument presented in literature shows both the strengths and weakness of technology thereby giving a balance to the literature. To support this, claim the author has used an example from the global competitive report (2018) to show that customs efficiency does not depend on technology. Rogers (2003) lays it out very well in his theory that adoption of technology has to undergo various stages before adoption.

In regards to capacity building, the author illustrates how country specific factors such as skills gained by customs officials can influence trade. Skilled members of staff tend to be efficient and reliable since they understand the inner workings of the organization. However, there is lack of commitment among member countries which can further boost capacity building. Two perspectives have been highlighted clearly, one that supports the author's position on capacity building and the other that does not. According to WTO (2014), many countries are finding it difficult to show commitment especially in providing human and financial resources. To such a complicated issue the author sums up the research well by bringing in the concept of perennial challenge which is brought about by lack of coordination between the local, regional and international donors.

The literature further argues that smuggling tends to create a shadow economy which illustrates the moderation effect between customs management practices and trade facilitation. The lack of creation of a proper monitoring process has created a shadow economy since there are individual are trying to avoid paying taxes. In the literature it is argued that the lack of process management such as the adoption of technology has led to vices such as smuggling. While this is clearly laid out in theory the author agrees

that there is no strategy for completely adopting various processes. In addition, there are no concrete guidelines on how to eliminate smuggling. However, Schneider and Enste (2016) argue that rules and constraints defined by various adopted models can be used against smuggling. It is in this regard that the study sought to determine this argument by using smuggling as a moderator to determine whether it affects trade positively or negatively. There are very few studies carried out in the area of smuggling but the author does include examples cited by Boyce and Ndikumana (2015) which adds credibility to the literature as a whole. In addition, the literature provides an important message to customs organizations.

Overall, the literature is balanced as it provides both strengths and weakness of previous work including moderation effect of smuggling. It also provides opinion that differs from the researcher. Majority of the research conducted on trade does show a clear distinction of how factors such as customs automation, capacity building and process management are able to facilitate trade specifically in Kenya. The literature does not establish a distinguished link between customs automation, capacity building, process management and trade facilitation. However, this study sought to illustrate the relationship that exists between customs automation systems, capacity building, process management and trade facilitation with smuggling as a moderator at the Inland Container Depot in Nairobi through a quantitative study.

2.6 Research Gaps

Review of literature on empirical research established that studies that have focused on the relationship between customs management practices and trade facilitation moderated by smuggling are either scarce or inconclusive. In relation to customs automation systems, Kimberley (2010) examines communication and information technology in trade. The study focused on how communication is used in trade to

transfer information from one agency to another using the latest adopted technology. The results show a positive significance in relation to trade. However, this study focused on simba, single window and scanning systems in customs.

In another study conducted by WTO (2011) regarding challenges facing capacity building in organizations such as customs the focus was on the lack of development in capacity building which indicated poor level of co-ordination and communication between national, regional and international agencies created duplication of roles in certain areas and little or no attention to other important areas of customs administration. The study revealed a significant correlation in challenges faced by the national, regional and international agencies with poor capacity building development. This study specifically focused on training and development, knowledge and skills and experience in customs.

Furthermore, Martinez (2019) shows that improving process management enables organizations to integrate digital elements into their processes. This study focuses on how digital platforms such as new operating systems encourage companies to improve their business models by integrating new digital elements. The study results showed a positive correlation of business growth with the adoption of new technological processes. For this study, adoption of new customs technological process was used to examine how it has assisted in declaration of goods, submission of documents and verification of goods in customs.

Based on the literature reviewed, there is limited research that aims to determine the inhibitory effect of smuggling on the relationship between customs administration practices and trade facilitation. This research study therefore sought to bridge this knowledge gap by investigating the moderating effect of smuggling on the relationship

between customs management practices and trade facilitation at the Internal Container Depot in Nairobi.

2.7 Summary of the Literature Review

The study has elaborated on how technology, capacity building, process management and smuggling as a mediator and how it impacts trade by reviewing literature and illustrations through empirical studies. In addition, the study has shown how the theory of innovation diffusion, the resource-based view and the fraud triangle theories are related to trade facilitation. In discussing customs automated systems, the study has elaborated its operations, importance and the benefits it provides to customs procedures. The study went further to discuss capacity building and how it facilitates customs officials through training, skills and experience gained from work in performing their duties. Process management was also discussed and the literature has shown how process management is important in the adoption of new technology in customs. Finally, smuggling according to the literature has given rise to shadow economies that run parallel to legal trade and its impact on trade both positively and negatively.

2.8 Conceptual Framework

A conceptual framework is a researcher understanding about the model to be studied with the aim of showing the existing relationship (Grant & Osanloo, 2014). For the purpose of this study, Figure 2.1 shows the influence of the moderating variable on the relationship between the independent and dependent variable.

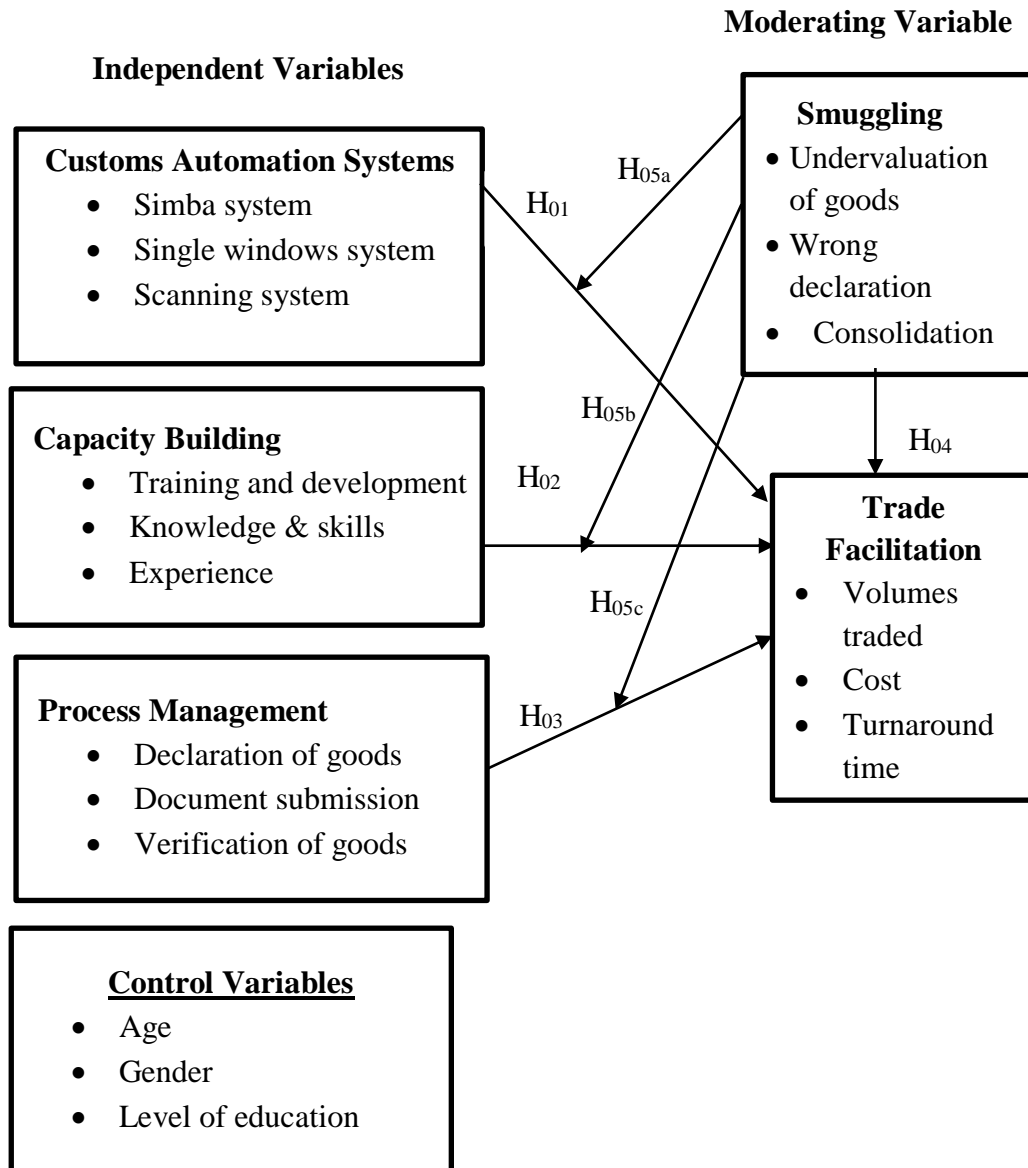


Figure 2.1: Conceptual Framework

Source: Researcher, (2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter discussed the methodological plan for this study. It highlighted the research design and the target population for this study. The chapter further described the sample size and sampling technique. The research instrument was also described as well as how the pilot study was conducted. In addition, the chapter discussed the validity and reliability of the study, the procedures taken to collect data, how the data was analysed and finally, the ethical considerations of the study.

3.1 Research Design

This study adopted an explanatory research design. An explanatory research design is research carried out in order to investigate a problem that has not been clearly investigated before. It is carried out to get a better understanding of the problem being investigated by illustrating how variables are related (Wilson, 2010). This design was selected for this study by the researcher as it provides an increased understanding of the topic. In addition, explanatory research design explains best the characteristics of variables and how to establish cause-and-effect relationship between variables. Finally, the study sought to establish the cause effect of customs managerial practices on trade facilitation.

3.2 Study Area

The research site for this study was customs offices at the Inland container depot in Nairobi. The Inland container depot is located in Embakasi, Nairobi County. Customs is the Kenyan government agency responsible for assessing, collecting and reporting all revenues to which the government is entitled under Kenyan law (KRA, 2020). KRA is a state agency that is in charge of collection of revenue in Kenya. Apart from that it

also has other various agencies that operate under it such as Customs & Border Control Department (C&BC) Domestic Taxes Department (DTD) and Intelligence & Strategic Operations Department (KRA, 2020).

3.3 Target Population

A population is an entire group of individuals or objects with common observable features to a researcher (Mugenda, 2013). The target population in this research was 150 Customs officers working at the Inland Container Depot in Nairobi (KRA, 2020).

3.4 Census Design

The census design involves all members of the study population in the study itself. The census design ensures that all members have a 100 percent chance of participating in the survey. According to Kothari (2004), the census design eliminates both sampling error and sample variance, and additionally improves the aggregation of survey results for the study population. The study population for this study was relatively small ($N < 200$) and therefore a census design was needed (Kothari, 2008). Therefore, due to the small study population size ($N = 150$), this study used a census design to include all customs officers from Nairobi's internal container depots in this study. All 150 customs officers participated in the study by providing information on customs management practices, smuggling, and trade facilitation. The sampling frame for this study was the full list obtained from KRA headquarters containing the names of customs officers currently stationed at the Internal Container Depot in Nairobi.

3.5 Research Instrument

Questionnaires are research tools developed by researchers with relevant questions and are used to collect information from the target sample (Collis & Hussey, 2009). Primary data were collected using a questionnaire. Closed questions, related to the variables

studied, allow respondents to choose from a predefined list of options. The questionnaire is divided into six sections. The main advantage of using a questionnaire is that a large amount of data can be collected over a certain period of time and, moreover, the results can be measured quickly and easily by the researcher using a software package that makes the whole process impartial (Saunders et al., 2012). However, this primary data collection method can have a weakness because it is not easy to determine whether the respondent's answer is correct (Babbie, 2012).

3.6 Data Collection Procedure

Collection of data was done after permission from Moi University/ Kenya School of Revenue Administration. A research permit letter from National Commission for Science, Technology and Innovation (NACOSTI) was enclosed together with the questionnaire specifying the objective of carrying out the research and its importance. Physical administration of the questionnaires was carried out by the researcher and research aids. Drop-off and pick-up method was administered at the inland container deport in Embakasi during the official working hours of 8am to 5pm. The drop-off and pick-up method by the researcher were appropriate for this study because it ensured reduced potential nonresponse bias through increased response rate.

3.7 Measurement of Variables

The questionnaire was divided into six sections. The first section consisted of the respondents' demographics (age, gender, level of management in the department, level of education of the respondent, level of experience and type of respondent). Three variables age, gender and level of education were measured as controlled variables. Age was measured under four categories, gender was measured under two categories, level of management was measured under three categories, level of education was measured under six categories and the level of experience was measured under four categories.

Sections two, three and four consisted of independent variables (customs automation systems, capacity building and process management). Section five consisted of the moderating variable (smuggling) and finally, section six consisted of the dependent variable (trade facilitation). The response scale for each statement in the questionnaire in sections two to six ranges from **1** to **5** whereby **1** was represented strongly disagree **2** is Disagree **3** is neutral **4** is agree **5** is strongly agree. The design of the questions was simple. Babbie (2012) argues that complicated questions and jargon should be avoided in order to reduce confusion between the researcher and the respondent. The use of the likert scale was relevant for this study as previous studies carried out by Maertens and Swinnen (2009) on trade had adopted the likert scale.

3.8 Pilot Study

Pilot testing is described as an exercise that confirms that errors are limited at very little cost. Kothari (2004) describes pilot survey as a replication and rehearsal of the study to be performed. A pilot study was applied in this study in order to pretest the constructs used in the investigation with the aim of improving the validity of the constructs, identifying problems and design of the questionnaire and with the aim of reducing any errors (Dillman, 2015).

The pilot study also assisted in participants recruitment strategies. The respondents who participated in the pilot were selected randomly and did not form part of the final study. The study used 30 customs officers at the KRA headquarters for piloting but they were not considered for the final study although they had similar characteristics as the target population. According to Hair, Money, Samouel, and Page (2007) a sample size for a pilot study should be between five and thirty respondents. Thirty questionnaires were used to carry out the pilot study.

3.8.1 Validity Test

Validity is defined as the extent to which an instrument measures what it purports to measure (Sekeran & Bougie, 2013). Validity can be broken down into content, criterion-based validity and construct validity. This study adopted both construct and content validity. To ensure content validity, the researcher randomly selected department heads and supervisors to evaluate the questionnaire for relevance. In the case of any changes the researcher adhered to the set guidelines and corrections put forward. For construct validity, a pilot test was carried out and the feedback was used to make any changes in areas that are not clear. Construct validity was also tested using factor analysis. Validity is important to this research as it helps ensure that researcher is using questions that truly measure the research variables.

3.8.2 Reliability Test

Reliability is the level of consistency with instruments that measure a trait (Polit & Hungler, 2013). It also refers to the degree to which applying the same tool independently under comparable conditions leads to the same result. The less variation the instrument produces across multiple attribute measurements, the higher the reliability. There is also a relationship between reliability and validity. Invalid instruments are not reliable (Polit & Hungler, 2013). In most research studies, reliability is often affected by random error in that it is an increase results in a decrease in reliability. The most popular test for inter item consistency is the Cronbach's alpha which is used for a multi-point scale.

Cooper and Schindler (2014) state that Cronbach's Alpha has the greatest utility for multi-item scales at the interval measurement level, requires only one administration and provides a unique quantitative assessment of the scale's internal order. Cronbach's alpha coefficient varies between 0 and 1, with higher alpha coefficient values being

more reliable. Questionnaires with good internal consistency must have a high alpha coefficient; All elements that give a Cronbach alpha coefficient of 0.7 or greater are considered reliable. Cronbach's Alpha was run on the questionnaire to determine its reliability. The study was also tested for reliability after analyzing feedback from the pilot study; Respondents received another questionnaire to retest its effectiveness. The questionnaire was revised under conditions similar to those at the start of the pilot study and the results were compared. With similar results, the questionnaire was approved as reliable for large-scale surveys.

3.9 Data Analysis and Presentation

Data analysis is a process whereby the data gathered is statistically analysed to determine whether the hypothesis formulated is supported or dismissed (Sekran & Bougie, 2013). Data analysis involves the breaking down of accumulated data into manageable size, looking for patterns and applying various techniques statistically and finally, developing summaries (Cooper & Schindler, 2014). Data was analysed using (SPSS) Statistical Package for Social Sciences version 24 for each of the research objectives and presented using inferential and descriptive modes. Data analysis involved both descriptive analysis and inferential statistics. Descriptive analysis entailed generating frequency distribution tables and figures whereas inferential statistics involved multiple regression and correlation analysis between independent variables (customs automation systems, capacity building and process management) and dependent variable (trade facilitation). Smuggling was the moderating variable.

3.10 Model Specification

This study uses hierarchical regression, which is used to indicate whether the variables of interest explain the amount of statistically significant variance in the dependent variable (DV) after all other variables are taken into account. Hierarchical regression

analysis describes a regression method in which not all variables are entered simultaneously, but individually. In each step, the correlation of the criterion variable Y with the current set of predictors was calculated and assessed (Baron & Rodin, 1978).

The equation below tests the effect of the control variables on the dependent variables (trade facilitation)

$$\text{i. } Y = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Education} + \varepsilon \dots$$

The equation below was used to test the effect of independent variables (customs automation system, capacity building, process management) on the dependent variable (trade facilitation) while holding constant the control variables.

$$\text{ii. } Y = \beta_0 + C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \dots \text{ (this equation was used to test } H_{01}, H_{02}, H_{03})$$

Where;

Y= Trade Facilitation

B₀= Constant (intercept)

C= Control Variable (Age, Gender, Education)

β₁- β₃= Coefficients of independent variable

X₁- X₃= Composite index of independent variables (Customs automated systems, capacity building and process management)

ε = Error term.

3.10.1 Testing for Moderation

The moderating variable affects the strength and direction of the relationship between the predictor and the outcome, and thus increases, decreases, or influences the effect of

the predictor variable. Moderation represents the interaction between variables; Such a test involves determining the statistical significance of the interaction terms (Whisman & McClelland, 2005). This study used Hierarchical regression model in testing the moderation effect of smuggling on the relationship between independent variables and the dependent variable as described by Baron and Kenny (1986). The steps are as follows:

Step 1: $Y = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Education} + \epsilon$...this entails holding constant the controls in the study.

Step 2: $Y = \beta_0 + C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$ – This equation was used to test the effect of independent variables on trade facilitation while holding constant the control variables.

Step 3: $Y = \beta_0 + C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \epsilon$ – This equation was used to test the effect of smuggling on trade facilitation while controlling control variables and independent variables.

Step 4: $Y = \beta_0 + C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 X_1 M + \epsilon$ -The model was used to estimate and give the direction and effect of the moderator on the first independent variable (Customs automated systems) and the dependent variable (H_{05a}).

Step 5: $Y = \beta_0 + C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 X_1 M + \beta_6 X_2 M + \epsilon$ This equation was used to test the effect of the moderator (smuggling) on the relationship between Capacity building and the dependent variable (H_{05b}).

Step 6: $Y = \beta_0 + C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 X_1 M + \beta_6 X_2 M + \beta_7 X_3 M + \epsilon$...This was the overall moderation meant to test the moderating effect of smuggling on the relationship between Process management and the dependent variable (trade

facilitation) while holding constant the controls, independent variables and the moderator(H_{05c}).

The moderation effect of smuggling was determined by examining the coefficient of determination (R-squared) before and after the interaction. The change in R-squared would illustrate that smuggling moderates the relationship between customs management practices (customs automated systems, capacity building and process management) and trade facilitation.

Where:

Y= Trade facilitation (Dependent Variable)

X= Customs management practices (customs automated systems, capacity building and process management) (Independent Variables)

M= Moderating Variable (Smuggling)

X₁M - X₃M = Interaction between customs management practices (independent variables) and trade facilitation

C= Control Variables

β_0, β_{1-7} = coefficients of estimates

ϵ =error term-random variation due to other unmeasured factors

3.11 Assumptions of Multiple Regression Model

Both multicollinearity and normality tests were conducted before the application of the regression model to ensure the results lack bias and are accurate.

3.11.1 Test for Normality

Normality test was performed before data analysis. The normality test determines whether the data set is well modeled from a normal distribution (Paul & Zhang, 2010). Several tests were performed to assess normality, such as: B. Test of bias and bias, Shapiro-Wilks, Kolmogoror-Smirnov, Jarqua-Bera, Lilliefors and Anderson-Darling (Das & Imon, 2016). This study used the Shapiro-Wilk test, a non-graphical normality test, to determine whether the residuals behaved normally. The Shapiro-Wilk test was used to test the null hypothesis and to test for normality in the distribution (Bai & NG, 2005). If the p value is greater than 0.05 ($p > 0.05$), the study cannot exclude zero (at 95%) and then concludes that the residuals are normally distributed.

3.11.2 Test for Multicollinearity

The degree of correlation of the independent variables is referred to as multicollinearity (Carl & Praveen, 2002). Multicollinearity can lead to large errors and make it difficult to assess the importance of individual variables in the model. This study uses both variance inflation rate (VIF) and tolerance for multicollinearity tests. A tolerance statistic below 0.10 ($1/vif < 0.10$) would indicate a problem with multicollinearity. The coefficient of variance inflation shows how much the variance of the coefficient estimate is inflated by multicollinearity. Therefore, an inflation rate variance greater than 10 ($vif > 10$) will indicate a problem with multicollinearity (Oscar, 2007).

3.11.3 Test for Linearity

Linearity refers to the extent to which changes in the dependent variable are related to changes in the independent variables (Hair et al., 2010). The linearity between the dependent variable and each independent variable was tested using scatterplots. The aim is to evaluate the linear relationship between variables.

3.11.4 Test for Homoscedasticity

Homoscedasticity refers to the assumption that the dependent variable has a similar variance in the range of values for the independent variable around the regression line, meaning that it has the same distribution.

3.12 Ethical Considerations

Ethical consideration refers to the process of confidentiality and protection of dignity of respondents and information publication in research (Arnold & Keith, 2010). Ethical issues need to be considered such as ensuring participants give consent, the process is voluntary and the information they provide is treated with utmost privacy and confidentiality (Manning, 2006). For this study, all requirements were met. Participation was strictly voluntary. Participants were free to withdraw if they felt uncomfortable with the process. Participants received written informed consent explaining the nature of the study and a signature for consent by the participant. Confidentiality is maintained by setting clear boundaries between information received from participants and information provided to the public, the consent form is contained in Appendix 1.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter summarizes the research results and discusses them according to the research objectives. The results are also examined in the light of the empirical research discussed in Chapter 2. This chapter presents response rates, analysis of missing data, demographic analysis, reliability, and results of factor analysis. Descriptive statistics and regression assumptions outcomes are then provided. Further correlation and regression results are presented. The purpose of this study was to assess the effect of customs managerial practices and smuggling on trade facilitation at Inland Container Depot in Nairobi, Kenya.

4.2 Response Rate

The researcher issued 150 questionnaires to Customs officers working at the Inland Container Depot in Nairobi. The response rate is shown in Table 4.1.

Table 4.1: Response Rate

Response	Frequency (f)	Percentage (%)
Returned	150	100%
Unreturned	Nil	-
Total	150	100%

Source: Research Data (2022)

All the questionnaires were completed and returned properly. This showed a response rate of 100%. According to Mugenda & Mugenda (2003), a 50 percent response rate is satisfactory, 60 percent is good, and 70 percent and above is excellent. As a result, the response rate in this study was enough for statistical analysis.

4.3 Missing Data Analysis

The term "missing data" refers to data that has not been captured for a variable for the observation in question. Missing data weakens the statistical power of the study, causing the results to be skewed. This study recorded no missing data, and therefore, the findings were expected to be valid.

4.4 Demographic Analysis

This section presents results on background information relating to the study respondents. The items include gender, age, management level, education level and experience. Table 4.2 shows the outcome.

Table 4.2: Demographic Information of the respondents

Variable	Level	Frequency (f)	Percent (%)
Gender	Female	63	42
	Male	87	58
	Total	150	100
Age	18-30 years	35	23.3
	31-40 years	83	55.3
	41-50 years	24	16
	Above 50 years	8	5.3
	Total	150	100
Management level	Top level management	24	16
	Middle level management	97	64.7
	Lower-level management	29	19.3
	Total	150	100
Level of education	Secondary level	24	16
	Certificate level	16	10.7
	Diploma level	16	10.7
	Bachelors	54	36
	Masters level	39	26
	PHD level	1	0.7
	Total	150	100
Level of experience	0-5 years	47	31.3
	6-10 years	30	20
	11-15 years	54	36
	16 years and above	19	12.7
	Total	150	100

Source: Research Data (2022)

The findings in Table 4.2 indicated that the male respondents (87, 58%) were more than the female (63, 42%). However, there was fair representation of both gender since the one-third gender rule was observed. Majority of the respondents (83, 55.3%) were aged 31-40 year, and (35, 23.3%) were aged 18-30 years. This suggested that most of the respondents were below 40 years. Further, 64.7% of the respondents were middle level managers, 19.3% were lower-level managers, while 16% were top level managers. This implied that data was collected across all levels of management, which was good for conclusiveness.

The respondents (36%) had bachelors, 26% had master's, and 10.7% had diploma and certificate respectively. Respondents with higher education were expected to have a better understanding of the topic than those with lower level of education. In addition, 36% of the respondents had 11-15 years' experience, 31.3% had 0-5 years' experience, 20% had 6-10 years' experience, while 12.7% had 16 years and above experience. Respondents with more experience were expected to provide more informed information of the study topic.

4.5 Reliability Analysis Before Factor Analysis

The Cronbach Alpha was used to assess the questionnaire's reliability before factor analysis. Table 4.3 shows the results.

Table 4.3: Reliability Results

Variable	Number of Items	Cronbach's Alpha	Comment
Customs automated systems	9	0.885	Reliable
Capacity building	5	0.800	Reliable
Process management	5	0.738	Reliable
Smuggling	5	0.725	Reliable
Trade facilitation	5	0.749	Reliable

Source: Research Data (2022)

As indicated in Table 4.3, customs automated systems had a Cronbach alpha value of 0.885, capacity building had 0.800, process management had 0.738, smuggling had 0.725, and trade facilitation had 0.749. Based on the results, all the constructs had Cronbach values more than 0.7 implying that the questionnaire was reliable.

4.6 Factor Analysis

Factor analysis is a size reduction technique used to reduce a large number of attributes into a smaller set of components (Yong & Pearce, 2013). It is used to measure structure as well as store variables in more manageable components. Kaiser-Meyer-Olkin (KMO) measures the suitability of the data collected for factor analysis. The KMO value varies between 0 and 1. If the value is between 0.8 and 1, it means that the sample is sufficient, while a value below 0.5 means that the sample is inadequate (Yong & Pierce, 2013). Bartlett's unanimity test determines whether the answers collected are valid or not for the problem being solved. In order for the factors to be significant, the Bartlett unanimity test must be significant at ($p < 0.05$). Results are shown in Table 4.4.

Table 4.4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.842
Bartlett's Test of Sphericity	Approx. Chi-Square	1648.108
	df	171
	Sig.	.000

Source: Research Data (2022)

The findings in Table 4.4 indicated KMO value of 0.842, which was greater than 0.5 indicating that the sampling was adequate. Further, Bartlett's test of sphericity recorded a χ^2 of 1648.108 with df of 171 at a significant value of 0.000, depicting a suitable factor analysis.

After observing the KMO and Bartlett tests, in order to maximize the variance of each factor, a "Varimax" rotation was performed, which redistributed the reported variance between the extracted factors. Table 4.5 shows the factors with the variation described.

Table 4.5: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.605	34.762	34.762	6.605	34.762	34.762	4.365	22.976	22.976
2	3.057	16.09	50.852	3.057	16.09	50.852	3.15	16.577	39.554
3	1.88	9.897	60.749	1.88	9.897	60.749	3.078	16.198	55.752
4	1.089	5.733	66.483	1.089	5.733	66.483	2.039	10.731	66.483
5	0.951	5.006	71.489						
6	0.817	4.301	75.789						
7	0.68	3.579	79.368						
8	0.604	3.18	82.549						
9	0.518	2.727	85.275						
10	0.468	2.464	87.739						
11	0.434	2.285	90.024						
12	0.377	1.985	92.009						
13	0.306	1.61	93.619						
14	0.298	1.568	95.186						
15	0.223	1.171	96.357						
16	0.209	1.098	97.455						
17	0.193	1.017	98.473						
18	0.155	0.814	99.287						
19	0.135	0.713	100						

Extraction Method: Principal Component Analysis.

Source: Research Data (2022)

The findings in Table 4.5 indicated the average variance explained to be 66.48% indicating a strong explanation of the study variables.

Table 4.6 indicates the rotated factor loading for the study constructs. Communalities of items should be greater than 0.50. The Principal Component Analysis (PCA) method of factor analysis was used to summarize data in order to make it more intelligible

without compromising any significant information. Items with factor loadings greater than 0.5 were accepted, whereas items with values below 0.5 were dropped.

Table 4.6: Rotated Factor loading for the study constructs

Items	Component			
	1	2	3	4
Non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD.	0.839			
Majority of the customs clearance processes are performed by the Simba system.	0.751			
Revenue leakages has greatly been reduced with the introduction of scanning equipment.	0.735			
Standardization of goods has been enabled with the introduction of the single windows system.	0.702			
The Single Window Systems main agenda is to facilitate international trade in Kenya by reducing delays and lowering cost associated with clearance of goods at the Kenyan borders, while maintaining controls and collection of duties and taxes on goods imports.	0.678			
Customs officers face technical challenges when operating the Simba system.	0.664			
There a risk management factor that the single windows system provides to customs officer during cargo clearance.	0.628			
Manual entry of data has been completely eliminated.	0.536			
Training and development in customs improves knowledge and skills of customs officers.		0.794		
Capacity building enable members of staff to achieve the organizational goals.		0.686		
Scanning of cargo has increased the capacity of containers being screened per day to 1,000 containers.		0.675		
There is a process of knowledge sharing to ensure sharing of information among customs employees.		0.63		
There has been an improvement in the declaration of goods with the introduction of the Simba system.		0.553		
The process of declaration application is effective and fast which leads to saving of costs.			0.885	
Electronic submission of documents is fast and increases revenue collection as it reduces transaction costs and it creates the atmosphere of transparency.			0.877	
Submission of documents is done both electronically and manually.			0.861	
X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods.			0.835	
Experience in your duty station provides for effective revenue collection in your department.				0.897
The skills the customs officials possess assist them in communication and problem solving.				0.891

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Source: Research Data (2022)

As indicated in Table 4.6, construct one (customs automated systems) was explained by eight items with factor loadings ranging from 0.536 to 0.839. Construct two (capacity building) was explained by five items with factor loadings ranging from 0.553 to 0.794. Construct three (process management) was explained by four items with factor loadings ranging from 0.835 to 0.885.

4.7 Reliability Analysis After Factor Analysis

The Cronbach Alpha was used to assess the questionnaire's reliability after factor analysis. Table 4.7 shows the outcome

Table 4.7: Reliability Results

Variable	Number of Items	Cronbach's Alpha	Comment
Customs automated systems	8 (7 internal, 1 external)	0.889	Reliable
Capacity building	5 (3 internal, 2 external)	0.806	Reliable
Process management	4	0.890	Reliable
Smuggling	5	0.725	Reliable
Trade facilitation	5	0.749	Reliable

Source: Research Data (2022)

As indicated in Table 4.7, customs automated systems had a Cronbach alpha value of 0.889, capacity building had 0.806, process management had 0.890, smuggling had 0.725, and trade facilitation had 0.749. Based on the results, all the constructs had Cronbach values more than 0.7 implying that the questionnaire was reliable.

4.8 Data Transformation

Data transformation is the process of converting data from one format to another. Data transformation is a component of most data integration and data management tasks, such as: B. Data Disputes and Data Storage. The data transformation in this study involves converting Likert scale responses into continuous data by calculating a

composite score. This involves adding up the elements to measure a particular structure and then leveling them. The modified data (combined results) were used to perform correlation and regression analysis.

For customs automation system, the eight items were summed ($CAS1+CAS2+\dots+CAS8$) and then divided by the number of items (8). This generated the composite value for customs automation system.

For capacity building, the five items were summed ($CB1+CB2+\dots+CB5$) and then divided by the number of items (5). This generated the composite value for capacity building.

For process management, the four items were summed ($PM1+PM2+\dots+PM4$) and then divided by the number of items (4). This generated the composite value for process management.

For smuggling, the five items were summed ($S1+S2+\dots+S5$) and then divided by the number of items (5). This generated the composite value for smuggling.

For trade facilitation, the five items were summed ($TF1+TF2+\dots+TF5$) and then divided by the number of items (5). This generated the composite value for trade facilitation.

4.9 Descriptive statistics

This section provides descriptive statistical results for the research variables. Specific descriptive statistics include mean, standard deviation, minimum and maximum values.

4.9.1 Customs Automated Systems and Trade Facilitation

The first objective of the study was to determine the effect of customs automated systems on trade facilitation. The respondents were asked to rate the items measuring the concept of customs automated systems. The following scale was used: 1 - strongly

disagree, 2-disagree, 3-neutral, 4- agree, and 5- strongly agree. The descriptive findings are shown in Table 4.8.

Table 4.8: Descriptive statistics on Customs automated systems

	Min	Max	Mean	Std. Dev
Majority of the customs clearance processes are performed by the Simba system	1	5	3.0	1.2
Customs officers face technical challenges when operating the Simba system	1	5	3.6	1.1
Standardization of goods has been enabled with the introduction of the single windows system	1	5	3.5	1.0
There is a risk management factor that the single windows system provides to customs officer during cargo clearance	1	5	2.9	1.2
The Single Window Systems main agenda is to facilitate international trade in Kenya by reducing delays and lowering cost associated with clearance of goods at the Kenyan borders, while maintaining controls and collection of duties and taxes on goods import	1	5	3.1	1.2
Non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD	1	5	3.1	1.2
Revenue leakages has greatly been reduced with the introduction of scanning equipment	1	5	3.0	1.2
Manual entry of data has been completely eliminated	1	5	3.1	1.2
Aggregate mean			3.2	1.2

As indicated in Table 4.6, majority of the respondents (mean=3.6) agreed with the statement that customs officers face technical challenges when operating the Simba system, and standardization of goods has been enabled with the introduction of the single windows system (mean=3.5). Further, a higher number of the respondents agreed that non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD (mean=3.1) and manual entry of data has been completely eliminated (mean=3.1). This imply that the respondents acknowledged the importance of customs automated systems and its ability to enhance trade facilitation. Nonetheless, the respondents (mean=2.9) disagreed with the claim that there is a risk management factor that the single windows system provides to customs officer during cargo clearance. This means

a section of respondents felt that the risk management factor was not adequately covered in the customs automated systems.

4.9.2 Capacity Building and Trade Facilitation

The second objective of the study was to determine the effect of capacity building on trade facilitation. The respondents were asked to rate the items measuring the concept of capacity building. The following scale was used: 1- strongly disagree, 2-disagree, 3- neutral, 4- agree, and 5- strongly agree. The descriptive findings are shown in Table 4.9.

Table 4.9: Descriptive statistics on Capacity Building

	Min	Max	Mean	Std. Dev
Capacity building enable members of staff to achieve the organizational goals	1	5	3.2	1.2
Training and development in customs improves knowledge and skills of customs officers	1	5	3.3	1.1
There is a process of knowledge sharing to ensure sharing of information among customs employees	1	5	3.3	1.0
Scanning of cargo has increased the capacity of containers being screened per day to 1,000 containers	1	5	3.4	1.2
There has been an improvement in the declaration of goods with the introduction of the Simba system	1	5	3.2	1.2
Aggregate mean			3.3	1.1

Results in Table 4.9 indicate that most of the respondents agreed with the statement that capacity building enable members of staff to achieve the organizational goals (mean=3.2), training and development in customs improves knowledge and skills of customs officers (mean=3.3), and there is a process of knowledge sharing to ensure sharing of information among customs employees (mean=3.3). Further, the respondents agreed that scanning of cargo has increased the capacity of containers being screened per day to 1,000 containers (mean=3.4) and there has been an improvement in the declaration of goods with the introduction of the Simba system (mean=3.2). The

findings imply that the respondents had positive opinion towards capacity building. Therefore, capacity building was is expected to contribute significantly to trade facilitation.

4.9.3 Process Management and Trade Facilitation

The third objective of this study was to establish the effect of process management on trade facilitation. The respondents were asked to rate the items measuring the concept of process management. The following scale was used: 1- strongly disagree, 2-disagree, 3-neutral, 4- agree, and 5- strongly agree. The descriptive findings are shown in Table 4.10.

Table 4.10: Descriptive statistics on Process Management

	Min	Max	Mean	Std. Dev
The process of declaration application is effective and fast which leads to saving of costs	1	5	3.9	0.9
Submission of documents is done both electronically and manually	1	5	3.9	1.0
Electronic submission of documents is fast and increases revenue collection as it reduces transaction costs and it creates the atmosphere of transparency	1	5	3.8	1.1
X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods	1	5	3.4	1.0
Aggregate mean			3.8	1.0

The findings in Table 4.10 showed that majority of the respondents (mean=3.9) agreed with the statement that the process of declaration application is effective and fast which leads to saving of costs. The respondents further agreed that submission of documents is done both electronically and manually (mean=3.9), electronic submission of documents is fast and increases revenue collection as it reduces transaction costs and it creates the atmosphere of transparency (mean=3.8), and X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods

(mean=3.4). This imply that the respondents acknowledged the importance of process management and therefore, it was expected to improve trade facilitation.

4.9.4 Smuggling and Trade Facilitation

The fourth objective of this study was to assess the effect of smuggling on trade facilitation. The respondents were asked to rate the items measuring the concept of smuggling. The following scale was used: 1- strongly disagree, 2-disagree, 3-neutral, 4- agree, and 5- strongly agree. The descriptive findings are shown in Table 4.11.

Table 4.11: Descriptive statistics on Smuggling

Statements on smuggling	Min	Max	Mean	Std Dev
Cases of smuggling of goods have been experienced at the Inland Container Depot	1	5	3.2	1.0
Corruption, tariff burden and unemployment are some of the causes of goods smuggling	1	5	3.9	1.0
Misinvoicing is a common practice of undervaluation of goods	1	5	4.0	0.9
Wrong declaration is often made to avoid inspection of goods by importers	1	5	3.7	1.0
Cargo consolidation has been used as an avenue of goods smuggling	1	5	3.8	1.1
Aggregate mean			3.7	1.0

As indicated in Table 4.11, majority of the respondents (mean=4.0) agreed with the statement that mis-invoicing is a common practice of undervaluation of goods, and corruption, tariff burden and unemployment are some of the causes of goods smuggling (mean=3.9). Further, the respondents agreed that cargo consolidation has been used as an avenue of goods smuggling (mean=3.8), and wrong declaration is often made to avoid inspection of goods by importers (mean=3.7). The findings imply that most of the respondents had a negative opinion towards smuggling. This was expected to have a negative effect on trade facilitation.

4.9.5 Trade Facilitation

The respondents rated statements on the dependent variable, which was trade facilitation. The following scale was used: 1- strongly disagree, 2-disagree, 3-neutral, 4- agree, and 5- strongly agree. The descriptive findings are shown in Table 4.12.

Table 4.12: Descriptive statistics on Trade Facilitation

Statements on Trade Facilitation	Min	Max	Mean	Std Dev
There is reduction of documentation and customs procedures through new trade procedures in customs	1	5	4.2	0.9
There is minimal cost, increase in turnaround time and volumes traded due to implementation of new customs procedures	1	5	3.3	1.1
Border operations, coordination, logistics and simplified border operations through new trade procedures have been effective	1	5	3.5	1.1
ICD has fully adopted a risk management system for customs control	1	5	3.9	0.9
Trade facilitation faces challenges such as lack of knowledge on the use of new technology and conflict of interest among government agencies	1	5	3.8	0.9
Aggregate mean			3.7	1.0

Results in Table 4.12 shows that majority of the respondents (mean=4.2) agreed with the statement that there is reduction of documentation and customs procedures through new trade procedures in customs. Further, the respondents agreed that ICD has fully adopted a risk management system for customs control (mean=3.9), and trade facilitation faces challenges such as lack of knowledge on the use of new technology and conflict of interest among government agencies (mean=3.8). In addition, most of the respondents (mean=3.5) agreed that border operations, coordination, logistics and simplified border operations through new trade procedures have been effective. The findings imply that most of the respondents had positive opinion towards trade facilitation using customs automation practices.

4.10 Regression Assumptions

Assumptions of regression were conducted to ensure that appropriate statistical test was applied in the analysis to avoid inaccurate estimations. Normality, linearity, multicollinearity, and homoscedasticity tests were among the tests performed.

4.10.1 Normality test

The Shapiro-Wilk test was used to determine normality. When the Asymp. Sig. (2-tailed) is greater than 0.05, data is presumed to be normally distributed. The results are shown in Table 4.13.

Table 4.13: Shapiro-Wilk Test of Normality

Variables	Statistic	df	Sig.
Customs automated systems	.988	150	.207
Capacity building	.973	150	.075
Process management	.906	150	.350
Smuggling	.952	150	.091
Trade facilitation	.960	150	.059

a Lilliefors Significance Correction

Source: Research Data (2022)

As indicated in Table 4.13, all the variables had significant (Sig) values greater than 0.05. The null hypothesis of normal distribution was therefore accepted. This implied that the study data was normally distributed.

4.10.2 Linearity Test

Scatter plots were used to conduct the linearity test as shown below.

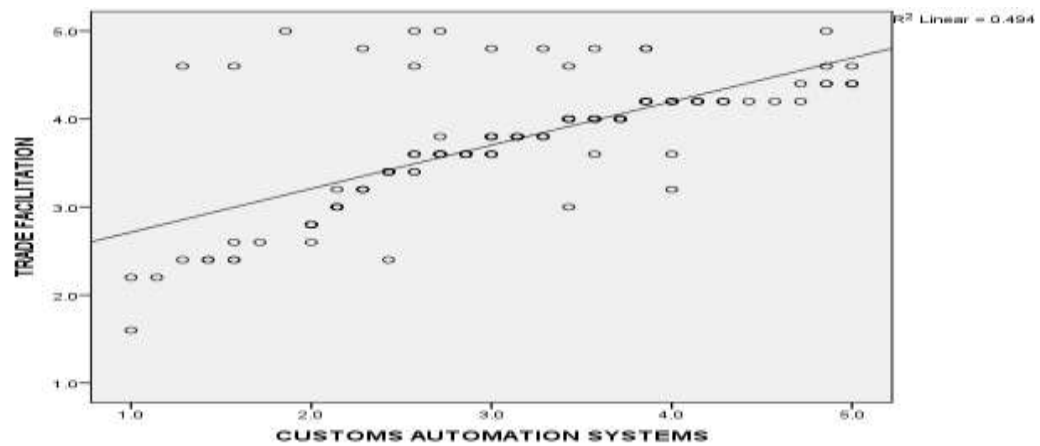


Figure 4.1: Linearity test between customs automated systems and trade facilitation

Source: Research Data (2022)

Figure 4.1 indicates a linear positive relationship between customs automated systems and trade facilitation. This is demonstrated by the positively sloping line of fit.

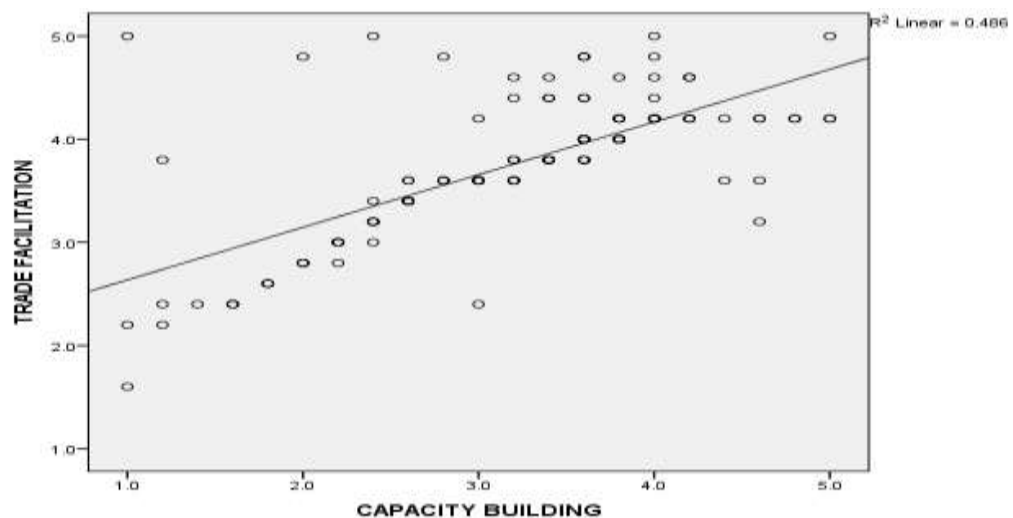


Figure 4.2: Linearity test between capacity building and trade facilitation

Source: Research Data (2022)

Figure 4.2 indicates a linear positive relationship between capacity building and trade facilitation. This is demonstrated by the positively sloping line of fit.

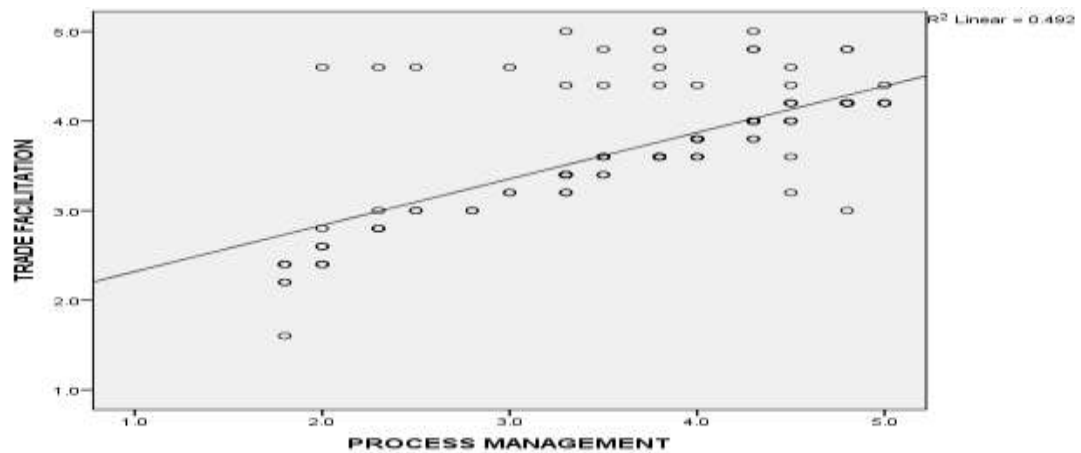


Figure 4.3: Linearity test between process management and trade facilitation

Source: Research Data (2022)

Figure 4.3 indicates a linear positive relationship between process management and trade facilitation. This is demonstrated by the positively sloping line of fit.

4.10.3 Multicollinearity test

Multicollinearity among the independent variables was conducted using VIF test as shown in Table 4.14.

Table 4.14: Multicollinearity test using VIF

Variables	Tolerance	VIF
Customs Automation Systems	.236	4.235
Capacity Building	.299	3.343
Process Management	.287	3.483

Source: Research Data (2022)

The VIF values as indicated in Table 4.14 were less than 10, indicating that there was no multicollinearity among the independent variables. This was also supported by tolerance values above 0.1. This suggested that the correlation between the independent variables was within the acceptable levels.

4.10.4 Homoscedasticity test

Homoscedasticity test was conducted using Levine's test of equality of error variances and the results are shown in Table 4.15.

Table 4.15: Levene's Test of Equality of Error Variances

Dependent Variable: Y			
F	df1	df2	Sig.
19.223	78	71	.071

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Source: Research Data (2022)

As indicated in Table 4.15, the P value of 0.071 was above 0.05 implying that the null hypothesis of constant variance of error terms was accepted. Therefore, the variance of the residuals was homoscedastic. This meant that heteroskedasticity was not a problem in this study.

4.11 Correlation Analysis

The findings of the correlation between the independent and dependent variables are presented in this section. Pearson Bivariate correlation coefficient was used to compute the correlation between customs automated systems, capacity building, process management and trade facilitation. Results are shown in Table 4.16.

Table 4.16: Correlation Results; Customs Managerial Practices and Trade Facilitation

		Trade Facilitation	Customs Automated Systems	Capacity Building	Process Management
Trade Facilitation	Pearson Correlation Sig. (2-tailed)	1			
Customs Automated Systems	Pearson Correlation Sig. (2- tailed)	.703** .000	1		
Capacity Building	Pearson Correlation Sig. (2- tailed)	.697** .000	.619** .000	1	
Process Management	Pearson Correlation Sig. (2- tailed)	.702** .000	.627** .000	.775** .000	1
	N	150	150	150	150

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

Source: Research Data (2022)

Table 4.16 revealed that customs automated systems ($r = .703^{**}$, $p < .05$), had a positive and significant correlation with trade facilitation. This implied that an increase in customs automated systems is significantly associated with an increase in trade facilitation.

Results also indicate that capacity building ($r = .697^{**}$, $p < .05$), had a positive and significant correlation with trade facilitation. This implied that an increase in capacity building is significantly associated with an increase in trade facilitation.

Further, the findings showed that process management ($r = .702^{**}$, $p < .05$), had a positive and significant correlation with trade facilitation. This implied that an increase in process management is significantly associated with an increase in trade facilitation.

4.12 Effect of the Control Variables on Trade Facilitation

A linear regression analysis model was conducted to test the prediction effect of control variables (gender, age, and level of education) on trade facilitation. The regression results are shown in Table 4.17.

Table 4.17: Regression Results; Control variables and trade facilitation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.572	0.237		19.277	0.000
	Gender	-0.262	0.102	-0.203	-2.571	0.011
	Age	-0.019	0.036	-0.041	-0.518	0.605
	Level of education	0.167	0.065	0.205	2.586	0.011
	R square	0.091				
	Adj R square	0.072				
	F statistic	4.854				
	P value	0.003				

a Dependent Variable: Trade Facilitation

Source: Research Data (2022)

Results in Table 4.17 indicate that the control variables jointly explain 9.1% ($R^2 = .091$) of the total variations in trade facilitation. The remaining 90.9% represents other variables not included in this model. The results imply that gender, age and level of education have minimal impact on trade facilitation. The F test of 4.854 and p value of $0.003 < .05$ denoted that the overall model was statistically significant.

Results further reveal that gender ($\beta = -0.203$, $p < .05$) had a negative and significant effect on trade facilitation. This implied that change in gender would negatively influence trade facilitation. Level of education ($\beta = 0.205$, $p < .05$) had a positive and significant effect on trade facilitation. This implied that an increase in level of education by one unit would result to an increase in trade facilitation by 0.205 units. Further, results indicated that age did not have a significant ($p > .05$) effect on trade facilitation.

4.13 Effect of Customs Managerial Practices on Trade Facilitation

A linear regression analysis model was conducted to test the prediction effect of the independent variables (customs automated systems, capacity building and process management) on the dependent variable (trade facilitation). Table 4.18 shows the model summary results.

Table 4.18: Model Summary; Customs Managerial Practices and Trade Facilitation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751a	0.563	0.554	0.426

a Predictors: (Constant), Process Management, Capacity Building, Customs Automation Systems

Source: Research Data (2022)

Table 4.18 reveal an R square of 0.563. This denoted that jointly, customs automated systems, capacity building and process management explains 56.3% of the variations in the dependent variable which is trade facilitation. Results indicated that customs automated systems, capacity building and process management were good predictors of trade facilitation. The findings are validated by the ANOVA results shown in Table 4.19.

Table 4.19: Analysis of Variance; Customs Managerial Practices and Trade Facilitation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.182	3	11.394	62.793	.000b
	Residual	26.492	146	0.181		
	Total	60.673	149			

A Dependent Variable: Trade Facilitation

B Predictors: (Constant), Process Management, Capacity Building, Customs Automation Systems

Source: Research Data (2022)

Table 4.19 shows an F statistic of 62.793 and a P-value of .000. The proposed model is statistically significant (excellent fit) in predicting the dependent variable due to the p value being less than the conventional value of .05. The regression weights of each variable in the model are presented in Table 4.20.

Table 4.20: Regression Coefficients; Customs Managerial Practices and Trade Facilitation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.777	0.158		11.212	0.000
	Customs Automation Systems	0.161	0.079	0.228	2.028	0.044
	Capacity Building Process	0.206	0.073	0.282	2.816	0.006
	Management	0.217	0.075	0.295	2.887	0.004

a Dependent Variable: Trade Facilitation

Source: Research Data (2022)

The regression coefficient results in Table 4.20 indicate that customs automated systems ($\beta = 0.228$, $p < .05$); capacity building ($\beta = 0.282$, $p < .05$); and process management ($\beta = 0.295$, $p < .05$) had a positive and significant effect on trade facilitation. This implied that an increase in customs automated systems, capacity building, and process management by one unit would result to an increase in trade facilitation in Kenya by 0.228, 0.282, and 0.295 units respectively.

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

$$Y = 1.777 + 0.228X_1 + 0.282X_2 + 0.295X_3$$

Where:

Y = Trade Facilitation

X₁=Customs automated systems

X₂=Capacity building

X₃=Process management

4.14 Effect of Smuggling on Trade Facilitation

A linear regression analysis model was conducted to test the prediction effect of the moderator (smuggling) on trade facilitation. The regression results are shown in Table 4.21.

Table 4.21: Smuggling and Trade Facilitation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.981	.260		19.157	.000
	Smuggling	-.331	.069	-.368	-4.808	.000
	R square	0.135				
	Adj R square	0.129				
	F test	23.115				
	P value	0.000				

a Dependent Variable: Trade Facilitation

Source: Research Data (2022)

Results in Table 4.21 indicate that smuggling explains 13.5% ($R^2 = .135$) of the total variations in trade facilitation. The remaining 86.5% represents other variables not included in this model. The F test of 23.115 and p value of $.000 < .05$ denoted that the overall model was statistically significant.

Results further reveal that smuggling ($\beta = -0.368$, $p < .05$) had a negative and significant effect on trade facilitation. This implied that a unit increase in smuggling reduces trade facilitation by 0.368 units.

From the hypothesized model ($Y = \beta_0 + \beta_1 M + e$), the estimated model becomes;

$$Y = 4.981 - 0.368M$$

Where:

Y = Trade Facilitation

M = Smuggling

4.15 Hierarchical regression model

The study sought to examine the moderating effect of smuggling on the relationship between customs automation, capacity building, process management and trade facilitation. A hierarchical regression model was used to determine the moderation. The results are indicated in Table 4.22.

Table 4.22: Moderation effect of Smuggling

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	4.572 (0.237) *	4.572 (0.237) *	2.833(0.365) *	7.515 (0.747) *	8.372(0.88) *	7.982(1.008) *
Control variables						
Gender	-0.203(0.237) *	0.053 (0.074)	0.054(0.072)	0.056 (0.062)	0.046(0.062)	0.042 (0.063)
Age	-0.205(0.065) *	0.121(0.045) *	0.113(0.044) *	0.086 (0.038) **	0.079 (0.038) **	0.084 (0.038) **
Education	0.041(0.036)	-0.065 (0.024)	-0.065(0.024)	-0.042 (0.021)	-0.027 (0.021)	-0.032 (0.021)
Customs automated systems		0.207(0.079) *	0.335 (0.081) *	-1.642 (0.213) *	-1.037(0.317) *	-1.398 (0.449) *
Capacity building		0.319(0.073)**	0.269(0.071) *	0.093 (0.065)	-0.724 (0.338)	-0.785 (0.343) **
Process management		0.282(0.076) *	0.146 (0.079)	0.174(0.068) **	0.102(0.074)	0.575 (0.443)
Smuggling			-0.199(0.053) *	-1.455 (0.17) *	-1.67 (0.2) *	-1.557 (0.237) *
Customs automated systems*Smuggling				2.311 (0.052) *	1.565(0.082) *	1.955(0.111) *
Capacity building*Smuggling					0.997(0.093) **	1.091(0.095) **
Process management*Smuggling						-0.513 (0.111)
F statistics	4.854	33.555	32.493	43.798	39.914	35.984
R2	0.091	0.585	0.616	0.713	0.72	0.721
Adjusted R2	0.072	0.567	0.597	0.697	0.702	0.701
R2 change		0.494	0.031	0.097	0.007	0.001

Values of standardized beta coefficients, with standard errors in Parenthesis

*p < .05

**p < 0.1 (2 tailed test)

As indicated in Table 4.22, models 1 to 6 indicate a goodness of fit as demonstrated by R^2 with values of 0.567, 0.597, 0.697, 0.702, and 0.701. Results also indicated that smuggling had a negative and significant effect on trade facilitation ($\beta = -0.199$, $P < .05$). Further, results indicated that the interaction effect of smuggling and customs automated systems was positive and significant ($\beta = 1.955$, $p < .05$). This implied that smuggling moderates the relationship between customs automated systems and trade facilitation.

On the other hand, the interaction effect of smuggling and capacity building was positive but insignificant ($p > .05$). Similarly, the interaction effect of smuggling and process management was positive but insignificant ($p > .05$). This implied that smuggling does not moderate the relationship between capacity building, process management and trade facilitation.

4.16 Hypothesis Testing

Hypothesis testing was based on regression coefficients. The criterion was to reject the null hypothesis if the p value was $< .05$. Otherwise, the null hypothesis would not be rejected.

The first null hypothesis (H_{01}) predicted that customs automated systems do not significantly affect trade facilitation. Results (Table 4.20) indicated a p value of $.044 < .05$ implying rejection of the null hypothesis. Therefore, customs automated systems significantly affect trade facilitation.

The second null hypothesis (H_{02}) predicted that capacity building does not significantly affect trade facilitation. Results (Table 4.20) indicated a p value of $.006 < .05$ implying rejection of the null hypothesis. Therefore, capacity building significantly affect trade facilitation.

The third null hypothesis (H_{03}) predicted that process management does not significantly affect trade facilitation. Results (Table 4.20) indicated a p value of $.004 < .05$ implying rejection of the null hypothesis. Therefore, process management significantly affect trade facilitation.

The fourth null hypothesis (H_{04}) predicted that smuggling does not significantly affect trade facilitation. Results (Table 4.21) indicated a p value of $.000 < .05$ implying rejection of the null hypothesis. Therefore, smuggling significantly affect trade facilitation.

The fifth null hypothesis (H_{05a}) predicted that smuggling has no moderating effect on the relationship between customs automated systems and trade facilitation. Results (Table 4.22) indicated a p value $< .05$ implying rejection of the null hypothesis. Therefore, smuggling significantly moderates the relationship between customs automated systems and trade facilitation.

The fifth null hypothesis (H_{05b}) predicted that smuggling has no moderating effect on the relationship between capacity building and trade facilitation. Results (Table 4.22) indicated a p value $> .05$ implying acceptance of the null hypothesis. Therefore, smuggling does not significantly moderate the relationship between capacity building and trade facilitation.

The fifth null hypothesis (H_{05c}) predicted that smuggling had no moderating effect on the relationship between process management and trade facilitation. Results (Table 4.22) indicated a p value $> .05$ implying acceptance of the null hypothesis. Therefore, smuggling does not significantly moderate the relationship between process management and trade facilitation.

4.17 Discussion of Findings

4.17.1 Customs automated systems and trade facilitation

The first objective of the study was to determine the effect of customs automated systems on trade facilitation. The respondents agreed with that standardization of goods has been enabled with the introduction of the single windows system. There has been an improvement in the declaration of goods with the introduction of the Simba system. Non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD (45.3%). Single Window Systems main agenda is to facilitate international trade in Kenya.

The correlation results revealed that customs automated systems ($r = .703^{**}$, $p < .05$), had a positive and significant correlation with trade facilitation. This implied that an increase in customs automated systems is significantly associated with an increase in trade facilitation. Regression results revealed that customs automated systems ($\beta = 0.228$, $p < .05$) had a positive and significant effect on trade facilitation. This implied that an increase in customs automated systems by one unit would result to an increase in trade facilitation by 0.228 units. The null hypothesis that customs automated systems do not significantly affect trade facilitation was rejected.

The study findings agreed with Schware and Kimberley (2010) observation that automation is a powerful tool to facilitate trade. Their study found that accessible information and communication technology significantly improves trade performance. The study findings also corroborated those of Duval (2014) who argued that the establishment of an IT based single windows system and a modern risk-management system ensured higher gains from trade facilitation.

4.17.2 Capacity Building and trade facilitation

The second objective of this study was to determine the effect of capacity building on trade facilitation in Kenya. The respondents agreed that training and development in customs improves knowledge and skills of customs officers. The skills customs officials pose assist them in communication and problem. There is a process of knowledge sharing to ensure sharing of information among customs employees (47.3%). Capacity building enable members of staff to achieve the organizational goals.

The correlation results revealed that capacity building ($r = .697^{**}$, $p < .05$), had a positive and significant correlation with trade facilitation. This implied that an increase in capacity building is significantly associated with an increase in trade facilitation. Regression results revealed that capacity building ($\beta = 0.282$, $p < .05$) had a positive and significant effect on trade facilitation. This implied that an increase in capacity building by one unit would result to an increase in trade facilitation by 0.282 units. The null hypothesis that capacity building does not significantly affect trade facilitation was rejected.

The study findings were consistent with WTO (2014) conclusion that capacity building initiatives should be able to respond to country specific needs and should be designed to fit the social economic and political aspects of each customs administration.

4.17.3 Process Management and trade facilitation

The third objective of this study was to establish the effect of process management on trade facilitation in Kenya. The respondents agreed that the process of declaration application is effective and fast which leads to saving of costs. Submission of documents is done both electronically and manually. Electronic submission of documents is fast and increases revenue collection as it reduces transaction costs and it

creates the atmosphere of transparency. X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods.

The correlation results revealed that process management ($r = .702^{**}$, $p < .05$), had a positive and significant correlation with trade facilitation. This implied that an increase in process management is significantly associated with an increase in trade facilitation. Regression results revealed that process management ($\beta = 0.295$, $p < .05$) had a positive and significant effect on trade facilitation. This implied that an increase in process management by one unit would result to an increase in trade facilitation by 0.295 units. The null hypothesis that processes management does not significantly affect trade facilitation was rejected.

The study findings supported the conclusions by Neubauer (2019) that business process management enables organizations to achieve quick organizational adaptation such as customs adoption of new technology. Further, the study findings concurred with Liu et al. (2019) assertion that business process management allows organizations to create dynamic collaborations and flexibility to synergistically adapt to changing global market conditions. Additionally, the findings agreed with Martinez (2019) argument that the process improvement approach allows organizations to incorporate digital elements into their processes.

4.17.4 Smuggling and trade facilitation

The fourth objective of this study was to assess the effect of smuggling on trade facilitation in Kenya. The respondents agreed that mis-invoicing is a common practice of undervaluation of goods. Corruption, tariff burden and unemployment are some of the causes of goods smuggling. Cargo consolidation has been used as an avenue of

goods smuggling. Wrong declaration is often made to avoid inspection of goods by importers.

Regression results revealed that smuggling ($\beta = -0.368$, $p < .05$) had a negative and significant effect on trade facilitation. This implied that a unit increase in smuggling reduces trade facilitation by 0.368 units. The null hypothesis that smuggling does not significantly affect trade facilitation was rejected.

The study findings supported Pedersen (2015) assertion that despite increase in revenue from the shadow economy, there was a tendency in the reduction on the life expectancy and the quality of life. However, the findings refuted Teobaldelli (2014) argument that smuggling influences economic development which further leads to fair distribution of resources in the population.

4.17.5 Customs managerial practices, smuggling and trade facilitation

The fifth objective of the study was to examine the moderating effect of smuggling on the relationship between customs automation, capacity building, process management and trade facilitation. From the hierarchical regression, the model's goodness of fit as demonstrated by R^2 with values of 0.567, 0.597, 0.697, 0.702, and 0.701. Results also indicated that smuggling had a negative and significant effect on trade facilitation ($\beta = -0.199$, $P < .05$). Further, results indicated that the interaction effect of smuggling and customs automated systems was positive and significant ($\beta = 1.955$, $p < .05$). This implied that smuggling moderates the relationship between customs automated systems and trade facilitation. On the other hand, the interaction effect of smuggling and capacity building was positive but insignificant ($p > .05$). Similarly, the interaction effect of smuggling and process management was positive but insignificant ($p > .05$).

This implied that smuggling does not moderate the relationship between capacity building, process management and trade facilitation.

The null hypothesis that smuggling has no moderating effect on the relationship between:

- a) Customs automation systems and trade facilitation was rejected.
- b) Capacity building and trade facilitation was accepted
- c) Process management and trade facilitation was accepted.

The study findings supported Azam (2017) argument that smuggling may increase trade flows which in turn leads to trade creation. Similarly, the findings agreed with Deardorff and Stolper (2017) assertion that in most African countries which have heavy government policies such as tariffs, trade creation tends to dominate through smuggling as most people try to evade customs tariffs set by the government.

On the other hand, the study findings disagreed with the argument by Amin and Hoppe (2013) that smuggling leads to reduced investment in the industry and hampers trade between countries. Further, the findings did not support Bhagwati and Hansen (2016) assertion that smuggling is harmful to trade between countries.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of major findings, conclusion and recommendations. This is done in line with the objectives of the study. The purpose of this study was to assess the effect of customs managerial practices and smuggling on trade facilitation at Inland Container Depot in Nairobi, Kenya.

5.2 Summary of Major Findings

This section presents a summary of the findings from the analysis.

5.2.1 Customs automated systems and trade facilitation

The first objective of the study was to determine the effect of customs automated systems on trade facilitation. The respondents noted that standardization of goods is enabled with the introduction of the single windows system. There has been an improvement in the declaration of goods with the introduction of the Simba system. Non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD.

The correlation results revealed that customs automated systems had a positive and significant correlation with trade facilitation. Regression results revealed that customs automated systems had a positive and significant effect on trade facilitation. The null hypothesis that customs automated systems do not significantly affect trade facilitation was rejected.

5.2.2 Capacity Building and trade facilitation

The second objective of this study was to determine the effect of capacity building on trade facilitation in Kenya. The respondents agreed that training and development in

customs improves knowledge and skills of customs officers. The skills customs officials pose assist them in communication and problem solving. There is a process of knowledge sharing to ensure sharing of information among customs employees.

The correlation results revealed that capacity building had a positive and significant correlation with trade facilitation. Regression results revealed that capacity building had a positive and significant effect on trade facilitation. The null hypothesis that capacity building does not significantly affect trade facilitation was rejected.

5.2.3 Process Management and trade facilitation

The third objective of this study was to establish the effect of process management on trade facilitation in Kenya. The respondents agreed that the process of declaration application is effective and fast which leads to saving of costs. Submission of documents is done both electronically and manually. Electronic submission of documents is fast and increases revenue collection as it reduces transaction costs and it creates the atmosphere of transparency. X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods.

The correlation results revealed that process management had a positive and significant correlation with trade facilitation. Regression results revealed that process management had a positive and significant effect on trade facilitation. The null hypothesis that process management does not significantly affect trade facilitation was rejected.

5.2.4 Smuggling and trade facilitation

The fourth objective of this study was to assess the effect of smuggling on trade facilitation in Kenya. The respondents agreed that mis-invoicing is a common practice of undervaluation of goods. Corruption, tariff burden and unemployment are some of the causes of goods smuggling. Cargo consolidation has been used as an avenue of

goods smuggling. Wrong declaration is often made to avoid inspection of goods by importers. Regression results revealed that smuggling had a negative and significant effect on trade facilitation. The null hypothesis that smuggling does not significantly affect trade facilitation was rejected.

5.2.5 Customs managerial practices, smuggling and trade facilitation

The fifth objective of the study was to examine the moderating effect of smuggling on the relationship between customs automation, capacity building, process management and trade facilitation. The findings indicated that smuggling had a significant moderating effect on the relationship between customs automation and trade facilitation. Further, the findings showed that smuggling had no significant moderating effect on the relationship between capacity building and trade facilitation. In addition, results indicated that smuggling had no significant moderating effect on the relationship between process management and trade facilitation. The null hypothesis that smuggling has no moderating effect on the relationship between customs automated systems, capacity building, process management and trade facilitation was rejected.

5.3 Conclusion

The study concluded that customs automated systems had a positive and significant effect on trade facilitation. This has the implication that customs automated systems contribute significantly to trade facilitation at Inland container depot in Nairobi. In particular, the study concluded that standardization of goods is enabled with the introduction of the single windows system. There has been an improvement in the declaration of goods with the introduction of the Simba system. Non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD.

The study also concluded that capacity building had a positive and significant effect on trade facilitation. This has the implication that capacity building contributes significantly to trade facilitation at Inland container depot in Nairobi. The key aspects of focus in capacity building were training and development, skills acquisition, and knowledge sharing.

The study further concluded that process management had a positive and significant effect on trade facilitation. This has the implication that process management contributes significantly to trade facilitation at Inland container depot in Nairobi. The study observed that the process of declaration application is effective and fast which leads to saving of costs. Submission of documents is done both electronically and manually. Electronic submission of documents is fast and increases revenue collection. X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods.

In addition, the study concluded that smuggling had a negative and significant effect on trade facilitation. This has the implication that smuggling significantly reduces trade facilitation at Inland container depot in Nairobi. The study observed that mis-invoicing is a common practice of undervaluation of goods. Corruption, tariff burden and unemployment are some of the causes of goods smuggling. Cargo consolidation is used as an avenue of goods smuggling. Wrong declaration is often made to avoid inspection of goods by importers.

Finally, the study concluded that smuggling had a significant moderating effect on the relationship between customs automation and trade facilitation; while smuggling had no significant moderating effect on the relationship between capacity building, process

management and trade facilitation. The implication is that smuggling significantly increases the impact of customs managerial practices on trade facilitation.

5.4 Recommendations

This section presents recommendations based on the study results.

5.4.1 Recommendations on Study Results

The results established that customs automated systems had a positive and significant effect on trade facilitation. The study recommended the need for management of Inland container depot to review the customs automated systems with an aim of strengthening the key aspects of the systems. The management should particularly focus on Simba system and Single Window System.

The study also established that capacity building had a positive and significant effect on trade facilitation. The study recommended the need for management of Inland container depot to review the capacity building program with an aim of strengthening the key aspects. Some of these aspects include training and development, skills acquisition, and knowledge sharing.

The study further established that process management had a positive and significant effect on trade facilitation. The study recommended the need for management of Inland container depot to review the process management policy with an aim of strengthening the key aspects. Some of these aspects include declaration application process, document submission, and X-ray cargo scanning.

In addition, the established that smuggling had a negative and significant effect on trade facilitation. The study recommended the need for key stakeholders including the government of Kenya, customs and border control departments, traders, clearing and

forwarding agents to review the anti-smuggling policy so as to seal existing loopholes. They should particularly focus on the following aspects: Mis-invoicing, corruption, tariff charges, cargo consolidation, and wrong declaration.

5.5 Suggestions for Further Research

This study assessed the effect of customs managerial practices and smuggling on trade facilitation at Inland Container Depot in Nairobi, Kenya. The focus was on three customs managerial practices (customs automated systems, capacity building and process management), which accounted for 56.3 percent of trade facilitation variability. Future studies should consider other practices that can explain the remaining 43.7 percent.

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APPENDICES

Appendix I: Introduction Letter

Dear respondent, I am student at Kenya School of Revenue Administration carrying out a quantitative research study on “**Customs Managerial practices, smuggling and trade facilitation at Inland Container Depot in Nairobi, Kenya**”. This is partial fulfillment of the requirements for the award of degree of Master in Tax and Customs Administration.

I have a set of close-ended questions that I would like you to answer in order to get information, which will be used in academic study only. The information you provide will be used strictly for academic purposes and will be treated with utmost confidentiality. Please note **NO NAMES** should be included in the questionnaire. In this study there is no reward or monetary compensation, you are free to participate in this study or withdraw at any time and you are asked to answer freely and voluntarily. Your participation will be highly appreciated. Thank you in advance for your time.

Name of researcher: Sharon Lucy Waithera Mweru

Signature of the researcher

Date...../...../.....

Statement to be signed by the participant:

- I confirm that the organizer has explained fully the nature of the project and the range of activities which I will be asked to undertake. I confirm that I have had adequate opportunity to ask questions about this project.
- I understand that my participation is voluntary and that I may withdraw at any time during the project, without having to give a reason and I agree to take part in this project.
- **Signature**.....**Date**...../.....

Appendix II: Questionnaire

To provide your opinion on various questions, please (✓) the box that matches your views in the spaces provided.

SECTION 1: DEMOGRAPHIC CHARACTERISTICS

1. Indicate your gender

- a) Female ☐
- b) Male ☐

2. Indicate your Age

- a) 18-30 ☐
- b) 31-40 ☐
- c) 41-50 ☐
- d) Above 51 ☐

3. Level of management in your department

- a) Top Level Management ☐
- b) Middle Level Management ☐
- c) Lower Level Management ☐

4. Level of education of the respondent

- a) Secondary Level ☐
- b) Certificate Level ☐
- c) Diploma Level ☐
- d) Bachelors Level ☐
- e) Masters Level ☐
- f) PHD Level ☐

5. Level of experience of the respondent

- a) 0-5 Years ☐
- b) 6-10 Years ☐
- c) 11-15 Years ☐
- d) 16 Years and above ☐

SECTION 2: CUSTOMS AUTOMATION SYSTEMS

Indicate by ticking (✓) your level of agreement with the following statement on a scale of 1 to 6, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	Majority of the customs clearance processes are performed by the Simba system					
2.	Customs officers face technical challenges when operating the Simba system					
3.	Standardization of goods has been enabled with the introduction of the single windows system					
4.	There a risk management factor that the single windows system provides to customs officer during cargo clearance					
5.	The Single Window Systems main agenda is to facilitate international trade in Kenya by reducing delays and lowering cost associated with clearance of goods at the Kenyan borders, while maintaining controls and collection of duties and taxes on goods imported or exported					

6.	Non-intrusive cargo scanning has improved inspection time of the containers at the port and ICD					
7.	Revenue leakages has greatly been reduced with the introduction of scanning equipment					
8.	Manual entry of data has been completely eliminated					

SECTION 3: CAPACITY BUILDING

Indicate by ticking (✓) your level of agreement with the following statement on a scale of 1 to 6, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	Capacity building enable members of staff to achieve the organizational goals					
2.	Training and development in customs improves knowledge and skills of customs officers					
3.	There is a process of knowledge sharing to ensure sharing of information among customs employees					
4.	There has been an improvement in the declaration of goods with the introduction of the Simba system.					
5.	Scanning of cargo has increased the capacity of containers being screened per day to 1,000 containers.					

SECTION 4: PROCESS MANAGEMENT

Indicate by ticking (✓) your level of agreement with the following statement on a scale of 1 to 6, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	The process of declaration application is effective and fast which leads to saving of costs					
2.	Submission of documents is done both electronically and manually					
3.	Electronic submission of documents is fast and increases revenue collection as it reduces transaction costs and it creates the atmosphere of transparency					
4.	X-ray cargo scanning provides a non-intrusive inspection making it effective and fast in verification of goods					

SECTION 5: SMUGGLING

Indicate by ticking (✓) your level of agreement with the following statement on a scale of 1 to 6, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	Cases of smuggling of goods have been experienced at the Inland Container Depot					
2.	Corruption, tariff burden and unemployment are some of the causes of goods smuggling					
3.	Misinvoicing is a common practice of undervaluation of goods					
4.	Wrong declaration is often made to avoid inspection of goods by importers					
5.	Cargo consolidation has been used as an avenue of goods smuggling					

SECTION 6: TRADE FACILITATION

Indicate by ticking (✓) your level of agreement with the following statement on a scale of 1 to 6, Where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	There is reduction of documentation and customs procedures through new trade procedures in customs					

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
2.	There is minimal cost, increase in turnaround time and volumes traded due to implementation of new customs procedures					
3.	Border operations, coordination, logistics and simplified border operations through new trade procedures have been effective					
4.	ICD has fully adopted a risk management system for customs control					
5.	Trade facilitation faces challenges such as lack of knowledge on the use of new technology and conflict of interest among government agencies					

Appendix III: Authorization letter from Moi University



REF: KESRA/NBI/036

1st April 2022

TO WHOM IT MAY CONCERN

RE: REQUEST FOR RESEARCH PERMIT

STUDENT NAME: SHARON L.W. MWERU
REGISTRATION NO : KESRA/105/074/2017

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

The named student is undertaking Research on topic: **"CUSTOMS MANAGERIAL PRACTICES, SMUGGLING AND TRADE FACILITATION AT INLAND CONTAINER DEPOT IN NAIROBI, KENYA."**

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

Your support to KESRA in this regard will be highly appreciated.

Thank you.

Dr. Marion Nekesa PHD,
Head Academic Research
KESRA



Appendix IV: NACOSTI Permit

RESEARCH LICENSE

Ref No: 143847

Date of Issue: 04/April/2022

Applicant Identification Number

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Director General

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code



Appendix V: Plagiarism Certificate

