INFLUENCE OF TECHNOLOGY ADOPTION ON CUSTOMS PERFORMANCE IN KENYA: A CASE OF MALABA AND BUSIA ONE-STOP BORDER POSTS

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DECLARATION

This thesis is my original work and has not been presented to any other University or Institution of Higher Learning for examination.

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DEDICATION

I dedicate this thesis to my very supportive spouse who saw an opportunity in a field that made me one of the pioneers of Tax and Customs Master's Degree in Kenya. Thank you for your love, inspiration and all your support during my studies. God bless you abundantly.

ABSTRACT

Technology has allowed many customs procedures to be digitized such as lodgment of entries, data validation, cargo inventory control, and goods declaration processing, electronic notification of release, revenue accounting, and customs enforcement. Although there has been great improvement on performance of the One Stop Border Posts there still exist challenges on the implementation of the OSBPs. The main objective of this study was to examine the influence of technology adoption on customs performance in Kenya. The study was guided by the following specific objectives, To establish the influence of perceived usefulness of technology, perceived ease of use of technology, behavior intention to use technology and actual use of technology on customs performance in Kenya. The study was based on Technology Acceptance Model, though theories such as Theory of Reasoned Action, Unified Theory of Acceptance and Diffusion of Innovation Theory were employed in the study. The study adopted explanatory research design. The target population of the study constituted 244 staffs in the customs and Border management at Busia and Malaba OSBP's. The study employed primary data, which was collected using questionnaires. Data is presented in tables and figures while interpretation is done in prose form. Multiple regression model was also used to predict the relationship existing between the independent and dependent variables. The findings indicated that perceived usefulness of technology had a positive and significant influence on customs performance ($\beta1=0.28$, $p=0.001$), perceived ease of use of technology had a positive and significant effect on customs performance ($\beta2=1.838$, $p=0.000$), behavior intention to use technology had a positive and significant influence on customs performance ($\beta3=2.267$, $p=0.000$), and actual use of technology had a positive and significant influence on customs performance ($\beta4=1.101$, $p=0.000$). The study concludes that perceived usefulness, perceived ease of use, behavior intention to use, actual use of technology has a positive and meaningful influence on customs performance in Malaba and Busia One-Stop Border Posts. From the findings, the study recommends that management of Malaba and Busia One-Stop Border Posts should develop programs that will encourage employees to adopt the use of modern technology in the customs system. This is expected to enhance productivity, effectiveness and overall performance of the One-Stop Border Posts in Kenya.

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ACRONYMS AND ABBREVIATIONS

AUTCP: Actual Use of Technology on Customs Performance

BIUCP: Behavior of Intention Use of Technology on Customs Performance

CFA: Confirmatory Factor Analysis

CP: Customs Performance

CSD: Customs Services Department

DOI: Diffusion of Innovation

DSS: Decision Support Systems

ERP: Enterprises Resource Planning

ICT: Information Communication Technology

IOM: International Organization for Migration

KESRA: Kenya School of Revenue Administration

KRA: Kenya Revenue Authority

NACOSTI: National Commission for Science, Technology and Innovation

OSBP: One Stop Border Post

PEOU: Perceived Ease of Use

PEUCP: Perceived Ease of use on Customs Performance

PU: Perceived Usefulness

PUCP: Perceived Usefulness on Customs Performance

SEM: Structural Equation Modeling

TAM: Technology Acceptance Model

TMEA: Trade Mark East Africa

TPB: Theory of Planned Behavior

TRA: Theory of Reasoned Action

UNECA: United Nations Economic Commission for Africa

WCO: World Customs Organization

OPERATIONAL DEFINITION OF TERMS

Border: The border demarcates the zone in which a state exercises jurisdiction and this includes the development, application and enforcement of policies and laws. It defines states in legal and geographical terms (Ladley & Simmonds 2007).

Customs Performance: Refers to security of goods, timeliness, ease of clearing goods and rate of tax compliance (Eshetu, 2015).

Customs: Refers to the Government Service which is responsible for the administration of Customs law and the collection of duties and taxes and which also has the responsibility for the application of other laws and regulations relating to the importation, exportation, movement or storage of goods; (WCO, 2008).

One Stop Border Post: An integrated border system under the OSBP model aims to bring together all the border agencies for improved efficiencies through streamlined, coordinated and harmonised operations (WCO, 1999).

Perceived Ease of Use: This is the degree to which a person believes that using a particular system would be free from effort (Davis et al., 1989).

Perceived Usefulness: This is defined as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis et al., 1989).

Technology Adoption: Refers to adoption or acceptance of new product or innovation (Davis et al., 1989).

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CHAPTER ONE

INTRODUCTION

1.0 Introduction of the study

This chapter presents the general introduction of the study. The specific issues discussed in this chapter are: the background of the study, problem statement, study objectives, research hypotheses, justification of the study and scope.

1.1 Background of the Study

Customs performance is a term that includes the outcomes of the efficiency of ease of clearance of goods, customs clearance process, security of goods, tax compliance rate and clearance time. The indicators include taxpayer compliance, customer satisfaction and corporate growth. The procedures for clearance of cargo from Kenya to other partner states have been difficult and bureaucratic for many key players. Cargo that enter Kenya through the port are in two classifications, those that are bound for home utilization ordinarily known as local imports which pay import duty locally and those that are bound for partner states, normally referred to as transit cargo, which are secured through bonds but don't pay import duty. The Customs & border control department of KRA accounts for more than 45% of all revenue collection.

The department's functions are geologically scattered all through the nation and incorporate air and sea port operations, border operations, x-ray cargo scanners, transit monitoring, trade statistics management function (KRA, 2013). Internationally, a few researchers and scientists have evaluated revenue system modernization and revenue collection. (Tette, 2012) did a study on the automation system procedure of the Ghana

Revenue Authority on the effectiveness of revenue collection using a case investigation of customs division. Muthama (2013) established a positive impact of automation system usage and the cost of tax administration, automation and viability of revenue collection.

Adoption of customs electronic "Simba" systems was the first modern technology that KRA adopted as a way of enhancing the performance of customs by helping in clearance procedures both internally and externally. The reason why KRA is very keen in modernizing its custom tax services is because KRA Customs Services Department (CSD) accounts for over 45% of all tax revenue collection in Kenya. The CSD functions are geographically scattered throughout the country and include air and seaport operations, border operations, x-ray cargo scanners, transit management, trade statistics management function (KRA, 2016).

A fundamental issue with Customs procedures in developing nations is the absence of clear systematization. The Customs authorities in developing nations have frequently developed specially appointed with old systems interlinked with new situations and a continued adding-on of laws and controls. The work and control of Customs must mirror the evolving environment. The level of trade is consistently expanding at a heightening rate, a certainty that implies that administrative bodies, for example, Customs must adjust to the new circumstances or danger turning into a major barrier to trade, additionally weakening the security of the nation by not having the capacity to adapt to the new times. This suggests there is an awesome need to enhance the Customs methodology, both to make it less complex and more methodical, without losing any of its authorizing obligation.

Technology adoption normally minimizes corruption cases since automation services eliminate direct contact between Customs tax officers and traders. In addition, adoption of modern technology also minimizes the potential negative impact of physical inspections, reduces overall waiting time at border crossing and at ports, secure appropriate processing of fees and Customs duties, simplify formalities, and provides timely information to transport operators. Further, technology minimizes transaction costs, enhances supply capacities, and increases global market access (Granqvist, Hintsa & Mannisto, 2017). All these advantages that comes with adoption of technology are recognized to enhance the performance of customs.

Technology adoption is one of the key ways of enhancing tax compliance as it allows tax simplification. Tax simplification as a result of modern technology has been established to have dual effects on enhancing compliance because it helps taxpayers in avoiding inadvertent errors, as well as limiting opportunities for tax evasion (Gidisu, 2016). As a result of this, majority of tax agencies across the globe have increasingly been demanding substantially more effective use of modern technology systems especially in customs services to ensure effective service delivery to their citizens. Modern technological innovations are continually having a profound impact on the customs administration as well as the way in the administration of taxation is concerned. Improved tax compliance is mainly achieved in the event that majority of taxpayers voluntarily declare and pay their tax liabilities as stipulated in the tax laws, without the intervention of the tax authorities through enforcement. However, if the voluntary compliance is low, then it goes without saying that enforcement measures like post clearance audit. This has been the practice in Kenya until the year 2003 when KRA embarked on serious automation

and taxpayer empowerment to adopt tax online services through training, sensitization and tax clinics (Mitra, Sharma, & Véganzonès 2016).

1.1.1 Performance of One-Stop Border Posts

Performance of one-stop border posts (OSBPs) has been greatly impacted by Information technology (IT) put in place by the government to improve and develop efficiency and effectiveness of service delivery and customer satisfaction at the OSBPs. In addition, IT increases efficiency, saves time, reduces duplication and cuts unnecessary costs. The Internet has become one the essential technological tools to enhance growth and prosperity of individuals, organizations and nations and is even considered by some as one of the basic human rights (Eshetu, 2015).

Through enactment and adoption of EAC One Stop Border Post Act, 2016 and implementation of EAC OSBP regulations 2017, the government has partnered with other development partners like JICA, TMEA, IOM and GIZ to improve infrastructure within the border crossing. TMEA has conducted infrastructure audits and needs assessment to determine what causes delays at borders and identify ways of reducing cost and time elements by enhancing the use of information technology (IT). Through mapping the process and time from when trucks and people arrive at borders and when they exit, including all requirements they must comply with under law. TMEA has then worked with architects to design infrastructure, which has simplified processes and procedures. As the OSBPs strive to improve on service delivery at the borders, there still exist issues of performance at the border posts. These have been necessitated by longs queues, which are still being experienced, and delays in border crossing time, which have been

attributed to systems (TMEA, 2016).

1.2 Statement of the Problem

Adoption of modern technology in delivery of tax services constitutes a major trend by tax authorities in management of tax administration especially custom taxes. This is because, across the globe and especially among developing nations, traders and investors who are normally involved in both local and international businesses have been raising serious issues in regards to the performance of customs services' delivery (Cheruiyot, 2018). The issues that emerge include lack of transparency about standards and regulations, redundant and protracted clearance processes, and multiple documents requirements in various formats and with different information elements, expand the cost and time of doing trade. As a result, of this, many tax authorities have made it their priority to incorporate modern technology in their customs service delivery (Kerrandi A.M, 2015). This is because modernization of customs via incorporation of modern technology provides measurable improvements in efficiency and effectiveness of customs operations (UNCTAD, 2016).

Customs performance remains crucial for micro and macro-economic development of any developing country (UNCTAD, 2016). Performance of OSBPs has been of great concern to many stakeholders including government agencies, and the public at large. These have ensured timely, faster, cheaper and quality service delivery (UNCTAD, 2016). OSBPs facilitate faster movement of goods and persons across borders by reducing the number of stops incurred in a cross-border transaction by combining activities of neighboring countries at a single location. It simplifies entry and exit procedures and adopts joint processing (2016 African Regional Integration Index

Report). Although there has been great improvement on performance of the border posts since the enactment of the OSBPs Act 2014, there still exist challenges on the implementation of the OSBPs. According to independent preliminary time and traffic surveys 2016, 10 out of 13 operational One Stop Border Posts (OSBPs) record 60% reduction in crossing times, on average, against TMEA's end of programme target of 30%.

A number of studies that have been undertaken on modern technology and tax performance in Kenya. Kwalia, (2012) did a study that focused on the impact of adoption of customs electronic procedures by clearing and forwarding agents in Nairobi Kenya. Lubeka (2017) conducted a study that assessed computerized systems effects and performance of customs and border control department of KRA. Martin (2017) also did a study that investigated the effect of ICT deployment on the operational performance of KRA. In addition, Kelvin (2017) conducted a study that investigated the impact of system automation on revenue collection in KRA. However, despite all these studies, there is no single one that has assessed how technology adoption influences customs performance in Kenya. Therefore, this study aimed to bridge the research gap by examining the influence of technology adoption on customs performance in Kenya.

1.3 Research Objectives

1.3.1 General objective

The main objective of this study was to examine the influence of technology adoption on customs performance in Kenya with focus to Malaba and Busia One-Stop Border Posts (OSBPs).

1.3.2 Specific Objectives

The study was guided by the following specific objectives:

i. To establish the influence of perceived usefulness of technology adoption on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

ii. To determine the effect of perceived ease of use of technology adoption on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

iii. To examine the influence of behavior intention to use technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

iv. To examine the influence of actual use of technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

1.4 Research Hypotheses

i. H_{O1} Perceived usefulness of technology adoption has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

ii. H_{O2} Perceived ease of use of technology adoption has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

iii. H_{O3} Behavior intention to use technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

iv. H_{O4} Actual use of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

1.5 Significance of the Study

The study sought to examine the influence of technology adoption on customs performance in Kenya. Kothari (2004) asserts that research inculcates scientific and inductive thinking and it promotes the development of logical habits and organization. The conduct of this research expects to contribute differently to the expectations of different groups of people who will be interested in its findings. First, policy makers will gain an understanding of opportunities available from the OSBPs. The findings of this study will serve as a basis for further investigations in this area for academicians and other scholars. Residents living around the selected OSBPs will find the research findings most beneficial by appreciating how technology adoption has impacted on the performance of OSBPs in promoting trade, enhancing border security and improving the economy of their areas. Area representatives in the legislature and the government will use the findings of this study to better policies and regulations that will further improve the performance of OSBPs. Further, the KRA will use the findings of this study to estimate the level of satisfaction and formulate new policies that will improve performance to enhance customs revenue collection.

1.6 Scope of the study

The study focused on examining the influence of technology adoption on customs performance in Kenya. The study was undertaken at the different government agencies operating at OSBPs in Busia and Malaba. The population targeted was staff working in Kenya Bureau of Standard (KEBS), Kenya Plant Health Inspectorate (KEPHIS), Kenya Revenue Authority (KRA) and other border management staff. The study was undertaken

between September and October 2019. Busia and Malaba OSBPs were chosen for the purpose of this study because they have the highest number of cross border trade. The study assumed explanatory research design and took up questionnaires as data collection method. Stratified sampling method was used to select determine the sample size.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature in this study was reviewed in line with the study objectives. It looked into empirical and theoretical review. The first part explains Technology Adoption Concept and customs performance. The second part explores the various theories used to hypothesis the study objective which are; Unified Theory of Acceptance and Use of Technology; Technology Acceptance Model (TAM), and Diffusion Innovation Theory. It also looks into the empirical review.

2.1.1 Customs Performance

Customs performance is a term that includes the outcomes of the efficiency of ease of clearance of goods, customs clearance process, security of goods, tax compliance rate and clearance time. The indicators include taxpayer compliance, customer satisfaction and corporate growth. The Customs department of KRA accounts for more than 45% of all revenue collection. The department's functions are geologically scattered all through the nation and incorporate air and sea port operations, border operations, x-ray cargo scanners, transit monitoring, trade statistics management function (KRA, 2017). Customs Systems are typically run by Revenue Authorities in a particular nation in handling of imports and exports. For the instance in Kenya the Kenya Revenue Authority controls it. Customs systems facilitate the declaration of goods, valuation, following of any bonds and additionally clearance of imports and exports.

As per KRA 2014, the essential function of the Customs Department is to gather and account for import duty and VAT on imports. Aside from the financial obligations, the Customs and border control division is likewise in charge of facilitation of legitimate trade; and protection of society from unlawful entry and exit of prohibited goods. Modernization of tax collection from manual to technology application has helped record an increase of 22 per cent to the gross domestic product (GDP), and has seen the government realize a 95 per cent target. Automation has reduced the cost of revenue collection and interaction between the taxpayer and staff, a fertile area for corruption (Masese, 2016).

2.1.2 Concept of Technology Adoption

The model was originally designed to predict user's acceptance of information technology and usage on the job. TAM focuses on the attitude explanations of intention to use a specific technology or service; it has become the most widely applied model for user acceptance and usage. TAM has become well established as a robust, is powerful model for predicting user acceptance. The original Technology Acceptance Model was developed based on the Theory of Reasoned Action (TRA) (Fishbein & Ajzein's, 1975). According to TRA, determinants of behavioral intention are attitude towards the behavior and subjective norm associated with the behavior.

Attitude refers to personal beliefs about the positive or negative value associated with a health behavior and its outcomes. Subjective norm refers to a person's positive or negative value associated with a behavior. It depends on whether or not the behavior is accepted by important referent individuals and their motivation to comply with those

referents. Interventions can be designed to change behavioral intention by affecting attitude and subjective norm to promote specific health behaviors. Fishbein and Ajzen suggested that a person's actual behavior could be determined by considering his or her prior intention along with the beliefs that the person would have for the given behavior.

Davis extended the Theory of Reasoned Action to formulate the Technology Acceptance Model. TAM model suggests that when users are presented with a new technology, two important factors influence their decision about how and when they will use it (Davis, 1989) these key factors are; Perceived usefulness (PU) was defined by Fred Davis as the degree to which a person believes that using a particular system would enhance his or her job performance. Perceived ease-of-use (PEoU), was defined by Davis as the degree to which a person i believes that using a particular system would be free from effort. The TAM has been continuously studied and expanded in other two major upgrades being the TAM 2 (Venkatesh & Davis 2000) and the Unified Theory of Acceptance and Use of Technology (or UTAUT, Venkatesh et al. 2003).

TAM deals with perceptions and it is not based on observing real usage but users reporting their conceptions. The instruments used in connection with TAM are surveys, where the questions are constructed in such a way that they reflect the different aspects of TAM (Straub et al., 1995). As Davis (1989) noted, future technology acceptance research must address how other variables affect usefulness, ease of use and user acceptance. Therefore, perceived ease of use and perceived usefulness may not fully explain behavioral intention towards the apply technology.

In this study the following constructs for technology adoption were used to conduct the research. The construct Perceived Usefulness, Perceived Ease of Use, Actual Use of Technology and Behavior Intention to Use Technology on Customs Performance have been adapted from the Davis Technology Acceptance Model. The adoption of technological products and services is often explained by the TAM (Davis, 1989). TAM suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it.

2.2 Theoretical Framework

A theory is a contemplative and rational type of abstract or generalizing thinking about a phenomenon, or the results of such thinking. The process of contemplative and rational thinking often is associated with such processes like observational study or research. It is also considered as a set of statements or principles devised to explain a group of facts or phenomena. This study was guided by Theory of Reasoned Action, Unified Theory of Acceptance and Use of Technology, Technology Acceptance Model (TAM), and Diffusion Innovation Theory.

2.2.1 Theory of Reasoned Action

The theory originates from social psychology, and it is an exceptional case of the Theory of Planned Behavior (TPB) (Ajzen, 2010). Fishbeinand (1975) developed TRA to define the connections between the beliefs, attitudes, norms, intentions, and behaviors of individuals. The Theory assumes that a man's conduct is controlled by the individual's behavioral intention to perform it and the intention itself is dictated by the individual's

attitudes and his or her subjective norms towards the behavior. The subjective norm alludes to "the individual's discernment that many people who are important to him think he ought to or ought not to perform the behavior being referred to (Ajzen, 2010). As indicated by the theory of reasoned action the individual behavior is motivated by behavioral objectives and these are a function of an individual's attitude toward the behavior and subjective standards encompassing the performance of the behavior. Technology acceptance model (TAM) has been founded on theory of reasoned action (TRA) and has been utilized to clarify individual's acceptance behavior.

In these studies TRA will be utilized to contrast it and TAM. Theoretically, the theory of Technology Acceptance Model (TAM) depends on the Theory of Reasoned Action (TRA). In TAM, two theoretical constructs, perceived usefulness and perceived ease of use, are the central determinants of systems implementation and use, in this research the Revenue collection system. According to TRA, a person's performance of a specific behavior is determined by his/her behavioral intention (BI) to perform the behavior and BI is jointly determined by the person's attitude (A) and subjective norm (SN) concerning the behavior in question. TRA is applicable when studying on consumer conduct according to revenue collection system applications in Kenyan regions. As to revenue collection system acknowledgment study, (Githinji & Mwaniki, 2014) have connected the Theory of reasoned activity (TRA) in a study concerning user participation and involvement in revenue collection system execution and context, their research intends to identify variables that need to clarify in revenue collection system. As indicated by (Kanungo & Bagchi's, 2000) study has inferred

that the model of theory of reasoned activity can be utilized for studying the use of systems in industries and higher establishments of learning context, and their research discoveries likewise demonstrated that the model explains user behavior compare to other model.

2.2.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) formulated a new model called the Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT suggests that three constructs are the main determinants of intention to use an information technology. The three constructs are performance expectancy, effort expectancy, and social influence. These three constructs are defined as follows. Performance expectancy is defined as the degree to which the user expects that using the system will help him or her attain gains in job performance. This new construct has five root constructs; perceived usefulness (from TAM/TAM2, Combined TAM and TPB), extrinsic motivation (from the Motivational Model), relative advantage (from the Innovation Diffusion Theory), and outcome expectations (from the Social Cognitive Theory). Effort expectancy: “the degree of ease associated with the use of the system”. Social influence: “the degree to which an individual perceives that important others believe that he or she should use the new system”. Venkatesh et al. (2003) also find that the influence of facilitating conditions on usage is moderated by age and experience of the individual. They define facilitating conditions as “the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system” As a survey instrument incorporating the most influential

constructs from the eight technology acceptance theories and models, UTAUT shares other TA models' major assumptions.

2.2.3 Technology Acceptance Model (TAM)

Technology Acceptance Model has been produced by Davis,(1989) is a standout amongst the most mainstream research models to predict use and acceptance of information systems and technology by individual users. The model proposes that when users are introduced to a new technology, various factors influence their decision about how and when they will utilize it In TAM model, there are two factors perceived usefulness and perceived ease of use is relevant in computer use behaviors. Davis defines perceived usefulness as the prospective user's subjective likelihood that utilizing a particular application framework will improve his or her employment or life performance. Therefore PU can impact the intention to accept and adopt computerized systems directly or indirectly. PEOU can be characterized as the extent to which the prospective user anticipates that the target system will be free of effort. It is further described as the internal belief of mental effort required in using a system.

This study characterizes it as the degree to which the user acknowledges the system to be easy to use. Davis, (1989) clarifies that an individual may trust that an application is helpful however he or she may likewise find that the system is hard to utilize. As indicated by TAM, usability and perceived usefulness are the most imperative determinants of actual system use. These two components are impacted by external variables. The fundamental external factors that are generally showed are social

elements, cultural elements and political variables. Social components incorporate dialect, skills and facilitating conditions. Political components are for the most part the effect of utilizing innovation as a part of legislative issues and political crisis. The attitude to use is concerned with the client's assessment of the attractive quality of utilizing a specific information system application. Behavioral intention is the measure of the probability of a person utilizing the application. In this study, TAM will be used as the basis for determining the acceptance and its success on information technology. The components making up perceived usefulness and perceived ease of use would focus specifically on the characteristics of OSBPs.

2.2.4 Diffusion of Innovation Theory

Diffusion of Innovation theory expresses that there are five seen attributes of an innovation that can determine the adoption of an innovation (Rogers, 1995); (Chong & Ooi, 2008). The five perceived traits of the innovation are relative advantage, compatibility, complexity, trialability and observability (Rogers, 1995). Relative advantage is the "extent to which an innovation is perceived as being superior to the idea it supersedes". Compatibility is defined as the extent to which a development is seen as "predictable with past values, past experience, and the needs of the potential adopters". The complexity of an innovation is whether the innovation is "perceived as generally hard to utilize and understand". Trialability alludes to whether an innovation might be "experimented with, on a constrained basis". Finally, observability is whether the "consequences of an innovation are visible to others". This study is therefore informed by a mix of the four theories i.e. TAM, TPB, TRA and DOI which together

backing the social, behavioral and innovative ,constructs determining the utilization of computerized systems.

2.3 Empirical Review

Empirical review is considered as a way of gaining knowledge by means of direct and indirect observation or experience. Normally, empirical evidence is obtained from the record of one's direct observations or experiences and can either be analyzed quantitatively or qualitatively.

2.3.1 Perceived Usefulness and Customs Performance

Perceived usefulness is one of the fundamental antecedent factors relating to technology usage and adoption (Tarhini et al., 2016; Alrajawy et al., 2016; Negahban & Chung, 2014; Callum & Jeffrey, 2013; Joo & Sang, 2013). Davis (1989) defined it as the degree to which a person believes that using a particular system would enhance his or her job performance. A previous study by Kim et al (2009) showed that perceived usefulness has a positive influence on actual usage within the context of intranet technology in Korea. This compares with Kim et al. (2007) who indicated that in the context of internet technology usage there is a positive relationship between perceived usefulness and actual usage and is in common with other results in a various other study (Kripanont, 2007; Norzaidi et al., 2007; McFarland & Hamilton, 2006).

While, there have been few studies on the influence of perceived usefulness on user satisfaction, Sun et al. (2008) in the context of e-Learning found that perceived usefulness predicts user satisfaction, Dalcher and Shine (2003) noted that the higher the

perceived usefulness, the higher the satisfaction, Doll and Torkzadeh (1998) indicated that perceived usefulness of IS is positively related to user satisfaction. Although, notable studies in the IS context emphasized that perceived usefulness positively influences user satisfaction (Sun & Mouakket, 2015; Kim, 2014; Barnes & Vidgen, 2014; Lee & Lehto, 2013; Revels et al., 2010; Roca et al., 2006; Konradt et al., 2006), there are some other studies which obtained an opposite result. For instance, Hong et al. (2006) found that in the context of information technology usage there is no relationship between perceived usefulness and user satisfaction, a finding similar to Venkatesh et al. (2011) who noted that belief that using a particular system would enhance the believer's job performance has no relationship with user satisfaction.

2.3.2 Perceived Ease of Use and Customs Performance

Perceived ease of use is the degree to which a person believes that using a particular system would be free from effort. Very few studies have been done on the role of perceived ease of use in customs performance context. Generally, several studies have proven that the perceived ease of use factor plays a major role in the performance context (Faqih, 2016; Koksal, 2016; Mutahar et al., 2016; Tarhini et al., 2013; Iqbal & Qureshi, 2012; Parveen & Sulaiman, 2008). There is a claim in performance literature that the higher the perceived ease of use of any system, the higher the perceived usefulness (Elkhani et al., 2014) and this is also supported by Lee et al. (2009) in the context of e-Learning. The relationship between perceived ease of use and performance has also been studied many times in the context of IS and showed that there is a positive relationship between the two variables (Bhatiasevi & Yoopetch, 2015; Kim, 2014; Lee et al., 2011;

Lee, 2009; Ha & Stoel, 2009; Luarn & Lin, 2005).

While, Kim *et al*. (2007) consider that a positive relationship between the perceived ease of use and performance seems to exist in the context of internet technology, many studies have emphasized in different contexts and technological applications that it positively influences actual usage (Elkhani et al., 2014; Kripanont, 2007; Konradt et al., 2006; McFarland & Hamilton, 2006; Teo et al., 1999). However, there are other studies, which obtained an opposite result that perceived ease of use does not influence actual usage (Lee & Kim, 2009).

2.3.3 Behavior Intention to Use Technology on Customs Performance

Behavior intention is the degree to which a person has formulated conscious plans to perform or not perform some specified future behavior. Notably, Behavior Intention and different senses will be influenced in a different way by expected hindrances to the behavior. If people must fear that they will be confronted with severe difficulties when performing a certain behavior, then they will usually be reluctant to decide for this behavior; i.e. the behavioral intention will be influenced rather negatively by hindrances. If, however, people have already decided, then they will usually be willing to invest that amount of effort, which is required to surmount the expected hindrances; i.e. the goal intention will be influenced rather positively by hindrances. There are many previous studies that have been undertaken in regards to the behavioral intention to use.

In China, Tsai (2012) did a study that examined consumer behavioral intention to use e-books using the Technology Acceptance Model perspective. Three cognitive factors brand and service trust, perceived usefulness and perceived ease of use were used to

measure the interactions among all factors and whether these factors have positive effects on attitude toward using, as well as whether attitude toward using has a possible effect on behavioral intention to use. Using convenience sampling, 213 effective samples were collected from consumers who are using or have had the experience of using e-books. The study results established that brand and service trust has a significant positive effect on attitudes toward using e-books; perceived usefulness has a significant positive effect on attitudes toward using e-books; perceived ease of use does not have a significant positive effect on attitudes toward using e-books; and attitudes toward using e-books has a significant positive effect on behavioral intention to use e-books.

In another study, Weng, Yang, Ho & Su, (2018) examined the effects of the information technology (IT) environment on the perceived usefulness, perceived ease of use, and attitude towards using multimedia, and the relevance and influence of these attitudes on behavioral intention. There are 2317 teachers in Chiayi County, and 460 participants were selected by stratified random sampling. The results showed that the ease of use of the multimedia material would enhance the intention to use. The attitude toward use also influences the intention to use.

In Malaysia, Wong, Osman, Pauline & Rahmat (2013) did a study that aimed to validate and test the Technology Acceptance Model (TAM) in the context of Malaysian student teachers' integration of their technology in teaching and learning. To establish factorial validity, data collected from 302 respondents were tested against the TAM using confirmatory factor analysis (CFA), and structural equation modelling (SEM) was used for model comparison and hypotheses testing. The goodness-of-fit test of the analysis shows partial support of the applicability of the TAM in a Malaysian context. In overall,

the TAM accounted for 37.3% of the variance in intention to use technology among student teachers and of the five hypotheses formulated, four are supported. Perceived usefulness is a significant influence on attitude towards computer use and behavioral intention. Perceived ease of use significantly influences perceived usefulness, and finally, behavioral intention is found to be influenced by attitude towards computer use. The findings of this research contribute to the literature by validating the TAM in the Malaysian context and provide several prominent implications for the research and practice of technology integration development.

Mark (2019) also did a study that examined online user's behavioral intention to utilize the governments' websites and their electronic services. The findings from the structural equations modeling approach reported a satisfactory fit for this study's research model. The results suggest that there were highly significant, direct effects from the UTAUT constructs, where the utilitarian motives predicted the online users' behavioral intentions to use e-gov. Moreover, there were significant moderating influences from the demographic variables, including age, gender and experiences that effected the individuals' usage of the governments' online services. In conclusion, this contribution identifies its limitations and suggests possible research avenues to academia.

Further, Kabra, Ramesh, Akhtar and Dash (2017) that examined technology adoption behavior of humanitarian organizations. Data from 192 humanitarian practitioners, who had experienced a large number of disasters, were utilized to empirically validate the conceptual model. The structural equation modeling results indicated that out of four constructs namely performance expectancy, effort expectancy, social influence and facilitating conditions under UTAUT, performance expectancy and effort expectancy

significantly affect the IT adoption. Contrary to expectations, trust and personal innovation do not affect the behavioral intention. Also, personal innovation does not moderate the relationship between performance expectancy and effort expectancy.

Sondakh (2017) also did a study that aimed to predict the behavior of the taxpayer's interest in using the E-tax returns through the implementation of Technology Acceptance Model (TAM). A sample with total of 156 respondents was selected. Data were analyzed using Structural Equation Modeling (SEM) modeling which consists of two stages: the measurement model (measurement model) and the structural model. The research finds that, the perceived ease of use has a significant positive effect on the perceived usefulness and attitudes towards use e-SPT. The perceived usefulness is having positive and significant effect on the attitudes towards use e-SPT but no significant effect on behavioral intention to use e-SPT. Attitude towards e-SPT are having positive and significant effect on the behavioral intention to use e-SPT.

In another study, Timothy & Mingming (2014) did a study that examined the factors that influence higher education students' intention to use technology. Using an extended technology acceptance model as a research framework, a sample of 314 university students were surveyed on their responses to seven constructs hypothesized to explain their intention to use technology. Data were analyzed using structural equation modeling and the results showed that perceived usefulness and attitude toward computer use were significant determinants of the intention to use technology, while perceived ease of use influenced intention to use technology through attitude towards computer use. Computer self-efficacy and subjective norm acted as antecedents for perceived usefulness and attitude towards computer use, while facilitating conditions acted as antecedents for

perceived ease of use and attitude towards computer use. Together these constructs explained 54.7% of the variance in students' intention to use technology. Implications of the findings were also discussed.

2.3.4 Influence of Actual Use of Technology Adoption on Customs Performance

In a quantitative study Norzaidi and Salwani (2009) indicated that there is a positive impact of actual usage on individual performance. This is in common with other studies, which found a significant relationship between system use and performance (Isaac et al., 2016; Makokha & Ochieng, 2014; D'Ambra et al., 2013; Hou, 2012; D'Ambra & Wilson, 2004; Wang & Liao, 2008; Fan & Fang, 2006; Lee et al., 2005). Conversely, there are studies, which found that actual usage does not predict performance (Cho et al., 2015; Khayun & Ractham, 2011; Wu & Wang, 2006). Norzaidi & Salwani (2009) addressed the relationship between system usage and user satisfaction in the context of internet technology and found a positive impact of actual usage on user satisfaction, similar to other studies which emphasized the significant influence of system usage on user satisfaction (Hou, 2012; Khayun & Ractham, 2011; Anandarajan et al., 2002; Isaac et al., 2016).

Amelia and Ronald (2013) did a study that examined the characteristics of internet banking users and to know the factors that influence the survey user of internet banking. The research method used in this study is non-probability sampling on several big cities in Indonesia. The data processing analysis is using multiple regression with SPSS 20.00 software. The variables of perceived usefulness, perceived ease of use, perceived

credibility, compatibility, personal innovativeness, and social influence do affect the interest in using internet banking, in in the end, the real utilization in using the internet banking. In addition, using quantitative research successfully generated indicators for each valid and reliable variables, namely 3 indicators from actual usage, 4 indicators from behavioral intention, 6 indicators from perceived usefulness, 6 indicators from perceived ease of use, 4 indicators from perceived credibility, 4 indicators from compatibility, 3 indicators from personal innovativeness, and 4 indicators from social influence.

2.4 Research Gaps

In current competitive business environment, organizations have to get to achieve maximally through the available resources, as it is a requirement. This has seen organizations taking proactive approach to systems modernization and operations in order to increase efficiency and effectiveness of their operations. This system modernization approaches permits organizations upgrade and implement new electronic platforms for them to enjoy maximum benefits (Amin, 2000). Custom electronic system modernization provides measurable improvements in efficiency and effectiveness of customs operations. This activity ensures on timely delivery and quality (UNCTAD, 2008). In developing countries there are higher expectations of customs systems to streamline operations but that may not be the case. Majority of these countries are crumbling with issues of inefficiencies, slow clearances, delayed payments and poor monitoring units.

Limited studies have concentrated on association between technology adoption and customs performance at the KRA. For example Gidisu (2012) using a case study of

customers division of Ghana Revenue Authority examined the influence of automation system procedure on effectiveness of revenue collection. The study did establish a negative influence of electronic system utilization and cost of tax administration, automation and efficiency of revenue collection resulting from poor customs administration. Neoga (2009) did an analysis on revenue productivity of the Kenyan Tax System by finding ways of bridging fiscal deficits. The study did not clearly indicate how the systems can help streamline operations. The 2016 Kenya Taxpayers association reported an unstable operation of services in KRA customs electronic system stations across the country. The report findings did show operations efficiency was below average despite higher expectations of the customs electronic system working on service delivery. Therefore, this study aims to investigate influence of technology adoption on customs performance in Kenya.

2.5 Chapter Summary

The chapter reviewed the existing literature related to the study objective on the influence of technology adoption on customs performance in Kenya. The study was guided by four related theories, which are by Unified Theory of Acceptance and Use of Technology (UTAT), Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA) and Diffusion Innovation Theory. Unified Theory of Acceptance and Use of Technology provides that the three constructs of performance expectancy, effort expectancy, and social influence are the main determinants of intention to use an information technology. On the other hand, Technology Acceptance Model provides a clear explanation of the determinants of computer acceptance that is general, capable of explaining user behavior

across a broad range of end-user computing technologies and user populations, while at the same time being both tight and theoretically justified. Lastly, Diffusion of Innovation Theory explains how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system.

In addition, perceived usefulness was established to be the degree to which a person believes that using a particular system would enhance his or her job performance. As a result of this, perceived usefulness was found to be one of the fundamental antecedent factors relating to technology usage and adoption. On the other hand, perceived ease of use was established to be the degree to which a person believes that using a particular system would be free from effort. Behavior intention is the degree to which a person has formulated conscious plans to perform or not perform some specified future behavior.

2.6 Conceptual Framework

According to Mc Gaghie *et al*. (2001) a conceptual framework is representation of the various study variables. It sets the stage for the presentation of the particular research question that drives the investigation being based on the problem statement. This study looked into the independent variables that influence customs performance in Kenya.

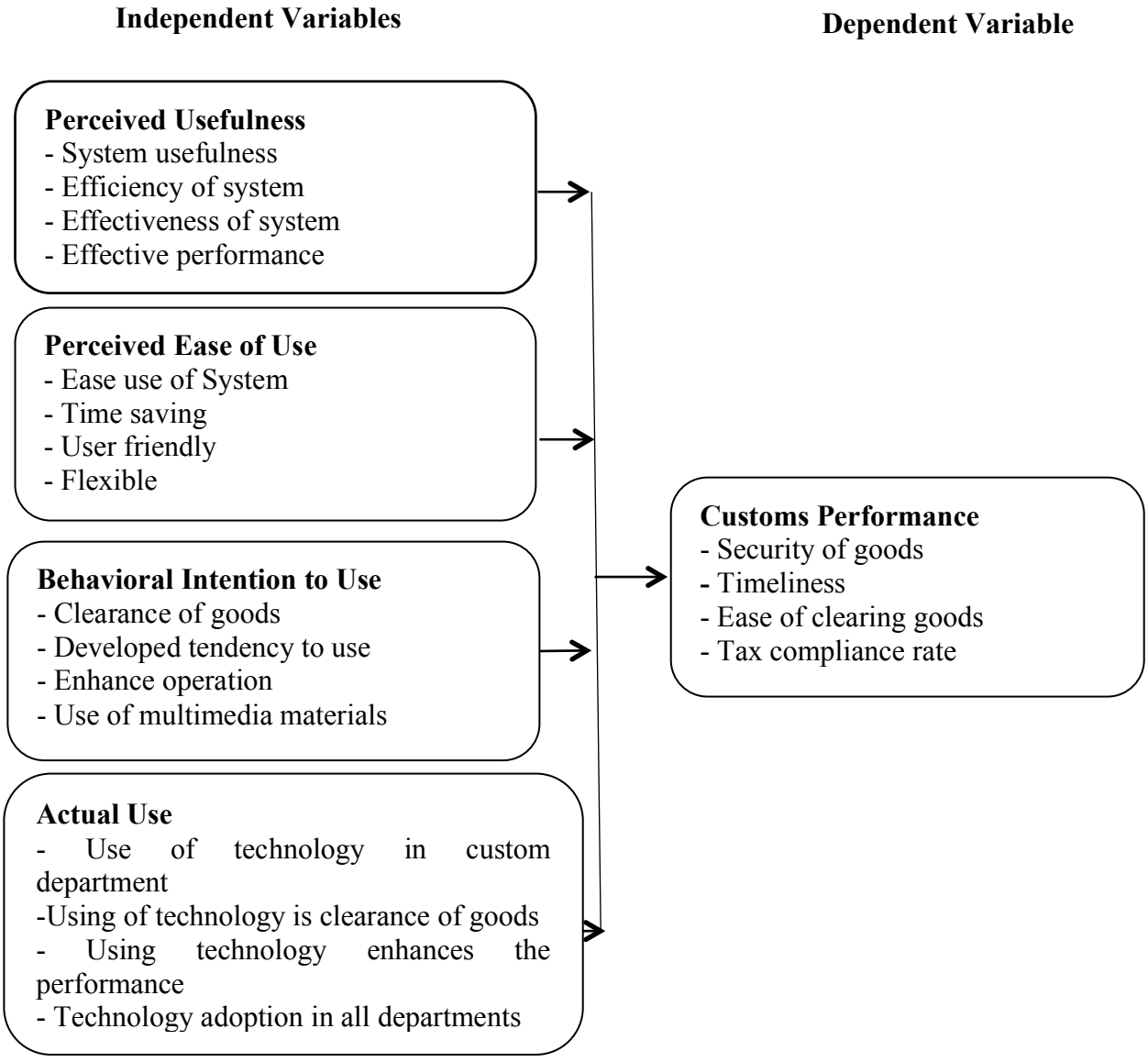

Figure 2.1: Conceptual Framework

Source: Researcher, 2019

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter identifies the methodology; the procedures and techniques that were used in conducting the study. It outlines the area of study where it presents the overview of the OSBPs and the reasons for preference on the area of study, research design to be used, target population and sample size. Sampling technique used to arrive at the appropriate sample size, questionnaires and data collections procedures will follow. Measurement of variables on their reliability and validity as well as ethical issues will form part of the last items in this chapter.

3.2 Research Design

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about "how" to conduct research using a particular methodology (Orodho, 2003). This study adopted explanatory research design. An explanatory research is a research conducted for a problem that has not been studied more clearly, intended to establish priorities, develop operational definitions and improve the final research design. It helps determine the best research design, data-collection method and selection of subjects.

3.3 Target Population

Target population is comprised of a group of members in a study that is presumed to be hypothetical in terms of individual's objects or events that a researcher utilizes so as to make assertions of the impending results (Borg et al 2009). The target population of this study constituted all 244 staffs in the customs and Border management staff at Busia and Malaba OSBP's (IOM, 2016).

The choice of Malaba and Busia OSBP was due to the high population served, hence a challenge in meeting service delivery by the customs officials. Both areas have technological infrastructure and internet connectivity which makes it effective in delivery of services to the cross-border traders and people. OSBP functions in these areas are more effective as compared to other cross border points.

3.4 Sampling Technique and Sample Size

Sampling technique is the process of selecting the sample population from the target population (Marshall & Rossman, 2011). The purpose of sampling is to reduce the size of the targeted population to a researchable population due to time, scope and financial constraints, but at the same time, ensuring that the sample selected was representative and objective. For the purpose of this study, Cochran formula determining sample size was used to select a sample of 151 staffs from customs and border management staff at Busia and Malaba OSBP's. According to the table, given a population of 244 respondents a maximum of 151sample size is adequate for the study. The formula presented below shows the sample size as arrived:

n = N / (1 + Ne^2)

Where;

- **e** = The margin of error i.e. 0.05
- **N**=The target population
- n =The corrected sample size

Therefore n = 244/ (1+244(0.05) ^2)

n= 151

3.5 Sources of Data

The study used primary data, which was collected from 151 staffs in the customs and border management staff at Busia and Malaba OSBPs.

3.5.1 Data Collection Instrument

Primary data for this study was collected using questionnaires. According to Kothari (2012), questionnaire consists of a number of questions that are printed and typed in a definite form and order. Questionnaires are very important when facts, attitudes, opinions respondents' motivation and their level of familiarity with a particular topic fascinate a researcher. Questionnaire will contain both open-ended and closed-ended questions.

3.5.2 Pilot Testing

A pilot test was undertaken prior to the main study in order to validate the research and test the reliability and validity of the research instruments. A pilot study, which involved 15 customs and border management staffs from Namanga OSBP, was conducted.

3.5.3 Reliability

Reliability defines the consistency of measurement that is used to analyze a number of conditions in order to derive similar outcomes (Nunnally, 2014). In other words, reliability measures the degree to which measurements are repeated when various individuals perform the same measurements on various instances under different circumstances, which can act as alternative instruments to measure the same thing. Cronbach alpha was used to measure the reliability of the research instruments. The average degree of reliability is dependent on the manner in which the measure is being used. Nunnally (2014) provided that one can hypothesize the measures of a construct where a reliability of Cronbach alpha of 0.7 or higher will indicate the items' internal consistency.

Reliability of the questionnaire tool was conducted using Cronbach Alpha which measures the internal consistency. The results are presented in Table 3.1.

Table 3.1: Reliability Results

Variable	**No of Items**	**α=Alpha**	**Comment**
Customs Performance	5	0.716	Reliable
Perceived Usefulness	5	0.795	Reliable
Perceived Ease of Use	5	0.718	Reliable
Behavior Intention to use	5	0.794	Reliable
Actual Use	5	0.793	Reliable
	25	**0.763**	Reliable

The above results indicate that customs performance had alpha coefficient of 0.716; Perceived Usefulness, 0.795; Perceived Ease of Use, 0.718; Behavior Intention to use, 0.794; and Actual use, 0.793. The overall alpha coefficient was 0.763>0.7. Therefore, all the items were considered to be reliable according to Taber (2018).

3.5.4 Validity

Validity refers to the extent to which the instrument measurers what it is intended to measure (Engek & Schutt, 2005). One of the main reasons for carrying out a pilot test is to safeguard the validity of the questionnaire. Content validity was therefore determined in order to validate the responses of the questionnaires. In order to ensure validity, the research supervisor analyzed the tool of research in order to determine whether it produced a meaningful argument in answering the research questions. It also made sure that the respondents were able to understand the items in the questionnaire properly and fully (Hair et al,.2006). Response choices were given to make sure that the questions answered related to the research questions.

3.6 Measurement of Variables

This is the process of strictly defining variables into measurable factors. The process defines ambiguous concepts and allows them to be measured, empirically and quantitatively (Nachmias and Nachmias, 2004). It means finding a measurable, quantifiable and valid index study variable whether independent, mediating or dependent variables. The independent variable in the study is perceived usefulness, perceived ease

of use, behavior intention to use and actual use while the dependent variables are customs performance.

Table 3.2 Measurement of Variables

Variable	**Operational Indicators**	**Supporting Literature**	**Data Transformation Process**	**Questionnaire Items**
Technology Adoption	Perceived Usefulness Perceived Ease of Use Behavior intention to use technology Actual use of technology	Tarhini et al., (2016); Alrajawy et al., (2016); Negahban and Chung, (2014); Callum and Jeffrey, (2013) Elkhani et al., (2014). Faqih, (2016); Koksal, (2016); Mutahar et al., (2016)	Scale 5-point Likert Scale	Primary
Customs performance	Security of goods Timeliness Ease of goods clearance Tax compliance rate	Eshetu, 2015	Scale 5-point Likert Scale	Primary

3.7 Data Analysis and Presentation

Data analysis is the process of evaluating data using analytical and statistical tools to discover useful information informing conclusion. Before data analysis, the data was checked for consistency, completeness and usefulness, which will entail editing, and data validation. Both qualitative and quantitative data will be obtained. Quantitative data was coded into computer software Statistical Packages for Social Scientists (SPSS Version 23.0) and was analyzed through the use of descriptive statistics. The qualitative data was based on the content analysis whereby answers with the same themes were grouped together. The statistical results obtained were presented using frequency and percentage tables as well as using figures. Multiple regression model was also used to predict the relationship existing between the independent and dependent variables as follows:

The regression model is

$$\mathbf{Y= \beta_0 +\beta_1 X_1 +\beta_2 X_2 + \beta_3 X_3+ \beta_4 X_4 +\varepsilon}$$

Where: **Y** is the dependent variable (Customs Performance)

$\boldsymbol{\beta_0}$ is the regression coefficient/constant/Y-intercept,

$\mathbf{X_1}$ = Perceived Usefulness

$\mathbf{X_2}$ = Perceived Ease of Use

$\mathbf{X_3}$ = Behavior Intention to Use

$\mathbf{X_4}$ = Actual Use

$\boldsymbol{\varepsilon}$ = Margin of error

In order to adopt an appropriate model for the study, necessary diagnostic tests were carried out. The diagnostics tests for multivariate model was normality test using Shapiro Wilk test. Test for multicollinearity using variance inflation factor, a variance inflation

factor of less than 10 will indicate the data does not exhibit multicollinearity. Heteroscedasticity test was run using Breusch-Pagan / Cook-Weisberg test in order to test whether the error terms are correlated across observations in the cross-sectional data (Long & Ervin, 2000).

3.7.1 Assumptions of the Regression Model

Before conducting inferential statistical tests, diagnostic analyses were carried out to test the assumptions of the multiple regression model. These tests included the normality test, linearity test, multicollinearity test and heteroscedasticity test.

Normality: For the normality assumption to hold, the residuals should be normally distributed about the predicted dependent variable. This was tested using the Shapiro Wilk Test in the study.

Multicollinearity: The multicollinearity test involves the relationship between independent variables, and it exists when the independent variables are highly correlated. This study confirmed this assumption by the use of the VIF and Tolerance values. The independent variables should not be highly correlated with each other, which were checked by using correlation matrix. This was ensured by computing the Pearson's bivariate correlations among all the independent variables.

Linearity: This concept assumes that the relationship between the independent and dependent variable is linear. This study tested linearity using ANOVA test to assess the deviation from linearity of the variables under study.

Heteroscedasticity: Heteroscedasticity refers to regression disturbances whose variances are not constant across observations (Greene, 2008) and was observed using the residual variances of observations.

3.8 Ethical Considerations

The researcher sought permission to conduct research from the Kenya Revenue Authority through Kenya School of Revenue Administration and National Commision for Science, Technology and Innovation. In addition, the researcher obtained a permission letter to carry out the study from Moi University. The researcher ensured that the study was carried out according to the highest dictates of ethical conduct in research. A healthy relationship with the study participants was maintained by briefing them about the purpose of the study and their role in it. In the briefs, the voluntary nature of their participation in the study was emphasized.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction

This chapter focused on the data analysis, interpretation and presentation of the findings. The main purpose of this research was to examine influence of technology adoption on customs performance in Kenya with focus to Malaba and Busia one-stop border posts. In particular, the study sought to establish whether perceived usefulness, perceived ease of use of technology, behavior intention to use technology and actual use of technology determines customs performance in Malaba and Busia One-Stop Border Posts (OSBPs). The researcher made use of frequency tables, percentages, mean and standard deviation to present data.

4.2 Questionnaire Return Rate

The study sampled 151 respondents from the target population of 244 in collecting data with regard to influence of technology adoption on customs performance in Kenya where focus was to Malaba and Busia one-stop border posts. The questionnaire return rate results are shown in Table 4.1.

Table 4.1: Response Rate

Response	**Frequency**	**Percentage**
Respondent	129	85
Non respondent	22	15
Total	**151**	**100**

From the study, 129 out of 151 target respondents filled in and returned the questionnaire contributing to 85%. This commendable response rate can be attributed to the data collection procedure, where the researcher engaged three research assistants to administer questionnaires and waited for respondents to fill in, where respondents left with questionnaires, they were reminded to fill in them through frequent phone calls and picked the questionnaires once fully filled. Any clarifications sorted by the respondents were attended to without delay. This response rate was good, representative and conforms to Mugenda and Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. The questionnaires that were not returned were due to respondents not being available to fill them in time and after persistent follow-ups, there were no positive feedback from them. The response rate demonstrated the willingness of the respondents to participate in the study.

4.3 Demographic Characteristics of the Respondents

The study targeted staff from Malaba and Busia one-stop border posts. As such the results on demographic characteristics of these respondents were investigated in the first section of the questionnaire.

4.3.1 Age of the Respondents

The study sought to establish the age bracket of the respondents; the findings are as shown in figure 4.1. From the findings, 16% of the respondents were aged between 20 – 30 years, 54% were aged between 31-40 years, 25% were aged 41-50 years and 5% were above 50 years.

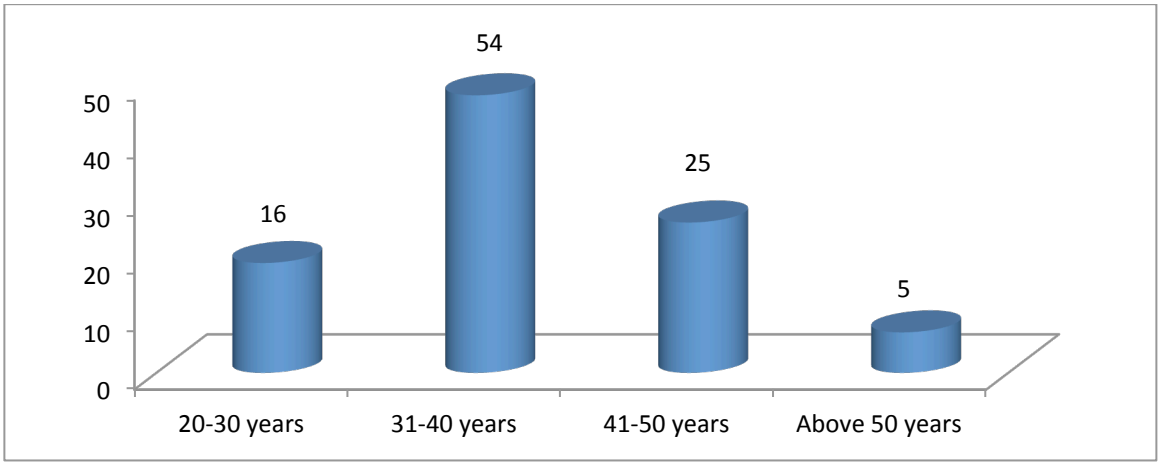

Figure 4.1: Age of the Respondents

4.3.2 Gender of the Respondents

The study results established that, majority (61%) of the respondents was male while the rest (39%) were female as indicated by Table 4.2 below.

Table 4.2 Gender

	Frequency	Percent
Male	79	61
Female	50	39
Total	**129**	**100**

4.3.3 Respondents Area of Work

Table 4.3 indicates areas in which respondents were working in the border agencies. From the findings (60%) of the respondents were working at Border management while 40% were in customs. This implies that all agencies that were targeted by the study were involved and that the findings are not biased.

Table 4.3 Work area

	Frequency	Percent
Border management staff	78	60
Customs	51	40
Total	**129**	**100**

4.3.4 Duration of Working

From the findings, (49%) of the respondents had worked at the borders for a period of 2-5 years, 29% had worked for a period of for less than 2years, 13% had worked for a 5-9 years while the rest (9%) had served for a period of above 9 years. This implies that most of the respondents of this study had worked for a longer period within at the borders thus conversant enough of the information that the study sought pertaining to the custom performance.

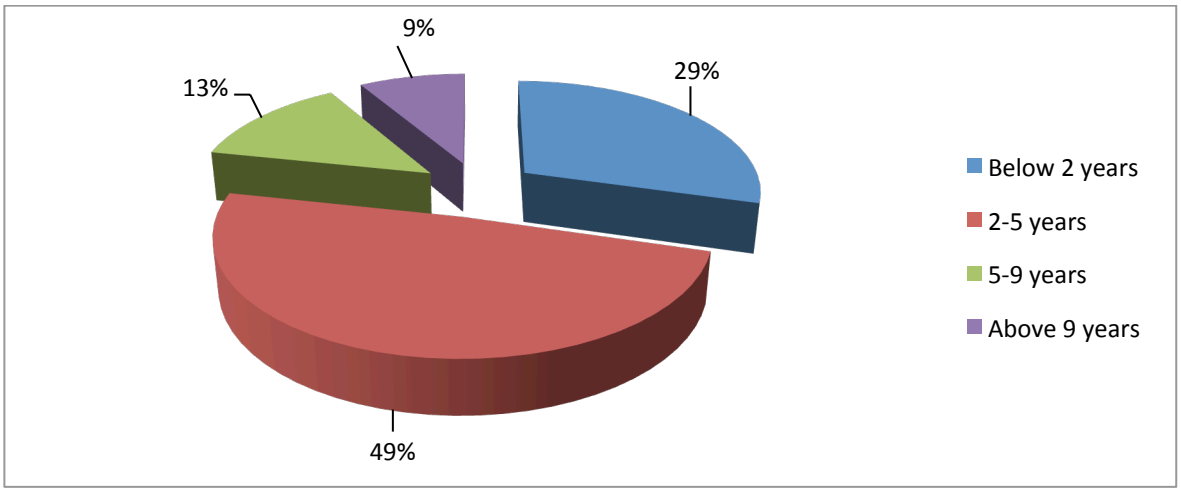

Figure 4.2: Period in Years

4.3 Descriptive Statistics

This section presents the descriptive statistics of the research data in the six fields of the structured questionnaire. The standard deviation, mean and coefficient of variation are used to illustrate and compare the nearness and the dispersion of the responses respective sections. The study also generated skewness and kurtosis statistics to help determine the departure from the mean responses in order to appreciate the distribution of the responses regarding technology adoption measures. Skewness is a measure of symmetry, or more precisely, the lack of symmetry. A distribution, or data set, is symmetric if it looks the same to the left and right of the center point.

4.3.1 Perceived Usefulness of Technology

The study sought to establish the extent to which Perceived Usefulness influence customs performance. The mean and standard deviations were generated from SPSS and are as illustrated in Table 4.4 below. From the study findings, majority of the respondents agreed that: I find the system usefulness in my scope, the system improves my productivity and that the system improves my effectiveness as indicated by the mean scores of 4.11, 3.93 and 3.92 respectively. Additionally, respondents agreed that the system helps me improve my performance and that I find the system very efficient as shown by the mean scores of 3.89 and 3.67 respectively.

From the study results, all the responses with respect to questions regarding to perceived usefulness of technology were negatively skewed. A negative skew indicates that the tail on the left side of the probability density function is longer than the right side and the bulk of the values (possibly including the median) lie to the right of the mean. All the

questions that covered the aspects of perceived usefulness of technology assumed a positive kurtosis value.

Table 4.4: Perceived usefulness of Technology

	N	Min	Max	Mean	STDev	CV	Skewness	Kurtosis
I find the system usefulness in my scope	129	1	5	4.11	0.903	0.220	-1.379	2.658
I find the system very efficient	129	1	5	3.67	0.894	0.243	-0.906	1.12
The system improves my effectiveness	129	1	5	3.92	0.853	0.218	-0.923	1.315
The system improves my productivity	129	1	5	3.93	0.945	0.241	-1.663	3.474
The system helps me improve my performance	129	1	5	3.89	1.207	0.310	-1.196	0.584
Aggregate	**129**	**1**	**5**	**3.91**	**0.961**	**0.246**	**-1.213**	**1.830**

4.3.2 Perceived Ease of Use (PEOU) of Technology

The Perceived Ease of Use area had five Likert items the closeness and dispersion for each of the item as well as collective closeness and dispersion. Table 4.5 illustrates that the cumulative score for Perceived Ease of Use (PEOU) section of the structured questionnaire is 3.95. This shows that respondents agreed to each of the Likert items in the section. This suggests that the respondents' responses were close to the collective

score of 4. Therefore, the respondents on average agreed with the constructs in the objective of Perceived Ease of Use (PEOU) of Technology domain with those of differing opinion not being so far away from an agreement. The collective standard deviation for Perceived Ease of Use (PEOU) of Technology is minor endorsing that the respondents usually agreed that Perceived Ease of Use (PEOU) of Technology is critical in customs performance. From the study output, skewness and kurtosis responses on Perceived Ease of Use (PEOU) of Technology constructs questions were negatively skewed (-1.191). A negative skew indicates that the tail on the left side of the probability density function is longer than the right side and the bulk of the values (possibly including the median) lie to the right of the mean.

Table 4.5: Perceived Ease of Use of Technology

	N	Min	Max	Mean	STDev	CV	Skewnes s	Kurtosis
I find the system easy to use	129	1	5	3.81	1.232	0.324	-0.999	0.077
I find the system fast and time saving	129	1	5	3.95	1.141	0.289	-1.111	0.634
The system is user friendly	129	1	5	4.01	1.042	0.260	-1.194	1.263
I find the system flexible to interact with	129	1	5	3.98	1.068	0.268	-1.259	1.322
My interaction with the system is clear	129	1	5	4.02	1.090	0.271	-1.393	1.725
Aggregate	**129**	**1**	**5**	**3.95**	**1.114**	**0.282**	**-1.191**	**1.004**

4.3.3 Behavior Intention to Use Technology

Behavior Intention to Use Technology section had 5 Likert items, the adjacency and dispersion of each of the item as well as the collective adjacency and dispersion. Table 4.6 demonstrates that the collective score for Behavior Intention to Use Technology constructs is 3.88. The collective scores round off to a score of 4 on the five-point Likert scale applied in this study. This shows that the respondents agreed to each of the Likert items in the field. The aggregate standard deviation is 1.167, which is small relative to the possible highest variation from the mean response. This implies that the respondents' responses closely clustered around the aggregate score of 4.

Furthermore, Table 4.6 shows that the aggregate coefficient of variation for the Behavior Intention to Use Technology domain is 0.302. This is larger than that of perceived usefulness domain that stands at 0.282. This implies that responses in Behavior Intention to Use Technology domain were varied from the mean compared to those of the Behavior Intention to Use Technology domain. In this case, the narrow variation from the overall mean response confirms that the respondents agreed that perceived usefulness plays a major role in customs performance.

On the other hand, the study generated skewness and kurtosis statistics to help determine the departure from the mean responses. All the responses with respect to questions regarding to Behavior Intention to Use Technology were negatively skewed. A negative skew indicates that the tail on the left side of the probability density function is longer than the right side and the bulk of the values (possibly including the median) lie to the right of the mean. All the questions that covered the aspects of Behavior Intention to Use

Technology assumed a positive kurtosis value one, which had a negative value meaning that the data outlier character was less extreme from a normal distribution. Skewness and kurtosis are ideal measurement that tries to provide information with regards to the severity of departure from a normal distribution. The values in this case are modest and we can deduce that the departure from normality was insignificant and thus not severe.

Table 4.6: Behavior Intention to Use Technology

	N	Min	Max	Mean	STDev	CV	Skewness	Kurtosis
I tend to use technology in clearance of goods in customs	129	1	5	3.81	1.061	0.279	-1.117	1.175
I increase the tendency of using technology in clearance of goods in border	129	1	5	3.75	1.431	0.381	-0.967	-0.449
Using technology in custom department in the border enhance operation of the custom department	129	1	5	4.09	1.093	0.267	-1.537	2.094
I would love to use technology in the custom department	129	1	5	3.77	1.093	0.290	-1.163	1.143

I use multimedia materials to provide multi-approaches on custom department operations	129	1	5	3.96	1.155	0.292	-1.437	1.536
Aggregate	**129**	**1**	**5**	**3.88**	**1.167**	**0.302**	**-1.244**	**1.100**

4.3.4 Actual Use of Technology

Table 4.7 illustrates the finding of the study on the respondent level of agreement. From the findings, most of the respondents agreed that it is valuable to use technology in the custom department and it is necessary to use technology in all custom departments as shown by mean score of 3.88 and 3.83 respectively. Respondents also agreed that using technology in the custom department has a positive influence to employee as it enhances the performance in the customs department and that using technology in custom department is suitable as depicted by mean score of 3.74 and 3.72 respectively. Further, respondents agreed that using of technology in clearance of goods in custom department is favorable as illustrated by mean score of 3.49.

Table 4.7 demonstrates that the collective score for Actual Use of Technology constructs is 3.73. The collective scores round off to a score of 4 on the five point Likert scale applied in this study. This shows that the respondents agreed to each of the Likert items in the field. The aggregate standard deviation is 1.148, which is small relative to the possible highest variation from the mean response. This implies that the respondents' responses closely clustered around the aggregate score of 4. Furthermore, Table 4.7 shows that the aggregate coefficient of variation for the Behavior Intention to Use

Technology domain is 0.308. In this case, the narrow variation from the overall mean response confirms that the respondents agreed that Actual Use of Technology plays a major role in customs performance.

Table 4.7: Actual Use of Technology

	N	Min	Max	Mean	STDev	CV	Skewness	Kurtosis
Using technology in custom department is suitable	129	1	5	3.72	1.139	0.306	-1.044	0.556
Using of technology is clearance of goods in custom department is encouraging	129	1	5	3.49	1.062	0.304	-0.725	0.145
Using technology in the custom department has a positive influence to me and enhances the performance in the department	129	1	5	3.74	1.421	0.380	-0.996	-0.399
I think it is valuable to use technology in the custom department	129	1	5	3.88	1.013	0.261	-1.139	1.452
I think it is necessary to use technology in all custom department	129	1	5	3.83	1.105	0.289	-1.173	1.064
Aggregate	**129**	**1**	**5**	**3.73**	**1.148**	**0.308**	**-1.015**	**0.564**

4.3.5 Performance of Customs

From the study findings presented in the Table 4.8, majority of the respondents strongly agreed that tax compliance rate has improved and there is increase in volume of cargo as a result of ease of clearing goods as indicated by the mean scores of 4.02 and 4.01 respectively.

On the other hand, majority of the respondents agreed that the e-clearance systems has shortened long procedures needed for paper documentation, time of clearance has decreased and through technology adoption there is increased security of goods as indicated by the mean scores of 3.84, 3.75 and 3.73.

All the responses with respect to questions regarding customs performance were negatively skewed while they assumed a positive kurtosis value.

Table 4.8: Performance of Customs

Performance of customs	N	Min	Max	Mean	STDev	CV	Skewness	Kurtosis
Through technology acceptance there is improved security of goods	129	1	5	3.73	1.248	0.335	-1.085	0.324
Time of clearance has decreased	129	1	5	3.75	1.111	0.296	-0.985	0.526
There is increase in	129	1	5	4.01	0.948	0.236	-1.414	2.646

volume of cargo as a result of ease of clearing goods								
Tax compliance rate has increased	129	1	5	4.02	0.914	0.227	-0.982	1.239
The e-clearance systems has shortened long procedures needed for paper documentation	129	1	5	3.84	1.137	0.296	-1.195	0.971
Aggregate	129	1	5	3.87	1.072	0.278	-1.132	1.141

4.4 Test of Assumptions

4.4.1 Normality Test

Normality test was conducted to determine distribution of data in the variables that were used in this research. To confirm whether the data were distributed normally, Shapiro-Wilk test was conducted. In the statistics, the rule is that if the value Sig is greater than 0.05, then the data is normally distributed in that given research, and if the value of Sig is less than 0.05, then the data is not normally distributed in that given research. Its statistic ranges from zero to one and figures higher than 0.05 indicate the data is normal (Razali & Wah, 2011).

Table 4.9: Shapiro-Wilk Test for Normality

	Shapiro-Wilk		
Variables	**Statistic**	**df**	**Sig.**
PUCP	0.679	129	0.000
PEUCP	0.83	129	0.000
BIUTCP	0.862	129	0.000
AUTCP	0.907	129	0.000
CP	0.736	129	0.000

From the study findings in Table 4.9, Shapiro-Wilk test was conducted and the value of each variable was obtained perceived usefulness had a Sig value of (.000), perceived ease of use had a Sig value of (.000), behavioural intention to use had a Sig value of (.000) and actual use of technology had a Sig value of (.000) and customs performance had a Sig value of (.000). Applying the decision-making rule, all the variables had Sig value less than 0.05, thus, we can conclude that the study data did not exhibit normal distribution. However, normality of the data was assumed since the sample size was large as stipulated by the central limit theorem.

4.4.2 Multicollinearity

Multicollinearity was tested to indicate whether there is similarity between the independent variables in a model. If the result indicates similarities between the independent variables it shows that there is a very strong correlation. The Multicollinearity rule dictates that if the VIF (Variance Inflation Factor) value lies between 1-10, then there is no multicollinearity, and if the VIF value is less than 1 or greater than 10, then there is multicollinearity. Based on the coeeficient output

collinearity statistics, obtained VIF value of 1.001 (perceived usefulness), 1.007 (perceived ease of use & behavioural intention to use technology) while VIF value 1.002 was obtained for (Actual use of technology). This means that all the VIF values obtained for all independent variables were 1, thus it can be concluded that there was no multicollinearity symptoms.

Table 4.10: Test for Multicollinearity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.029	.484		4.188	.000		
	PUT	.033	.087	.032	.379	.706	.999	1.001
	PEUT	-.048	.089	-.045	-.540	.590	.993	1.007
	BIUT	-.087	.088	-.084	-.991	.324	.993	1.007
	AUT	.392	.096	.344	4.091	.000	.998	1.002

a. Dependent Variable: CP

4.4.3 Test of Linearity

Linearity was tested by use of ANOVA test of linearity which computes both the linear and nonlinear components of a pair of variables whereby nonlinearity is significant if the F significance value for the nonlinear component is below 0.05 (Zhang *et al*., 2011). This helped the study establish whether there is a significant relationship between the dependent and independent variables. ANOVAs are helpful as they possess an advantage over a two-sample t-test which might results in an increased chance of committing a type

I error (error of rejecting a null hypothesis when it is actually true). To determine this relationship, when the value Sig. from linearity is greater than 0.005 the relationship between the independent variable and dependent variables are linearly dependent. On other hand, when the value Sig. from linearity is less than 0.005 the relationship between the independent variable and dependent variables are not linear.

4.4.3.1 ANOVA for Perceived Usefulness

The study aimed to determine whether the relationship between the dependent variable and independent variable is linear or not. Linearity test is conducted to support the correlation and linear regression analysis. In this study, the research tested the linearity between Perceived Usefulness and customs performance, based on the output, Perceived Usefulness of technology had a value Sig. of 0.775 which is greater than 0.05. Thus, we can conclude that there was linear relationship between the Perceived Usefulness of technology and customs performance.

Table 4.11: ANOVA for Perceived Usefulness

			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
CP * PUT	Between Groups	(Combined)	8.909	33	.270	.773	.797
		Linearity	.104	1	.104	.296	.587
		Deviation from Linearity	8.805	32	.275	.788	.775
	Within Groups		33.175	95	.349		
	Total		42.084	128			

4.4.3.2 ANOVA for Perceived Ease of Use

The study also tested the linearity between Perceived Ease of Use and customs performance, based on the output, Perceived Ease of Use of technology had a value Sig. of 0.523 which is greater than 0.05. Thus, we can conclude that there was linear relationship between the Perceived Ease of Use of technology and customs performance.

Table 4.12: ANOVA for Perceived Ease of Use

			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
CP * PEUT	Between Groups	(Combined)	15.036	47	.320	.958	.556
		Linearity	.000	1	.000	.000	.983
		Deviation from Linearity	15.036	46	.327	.979	.523
	Within Groups		27.048	81	.334		
	Total		42.084	128			

4.4.3.3 ANOVA for Behavior Intention to Use

The linearity between Behavior Intention to Use and customs performance was conducted, based on the output, Behavior Intention to Use technology had a value Sig. of 0.644 which is greater than 0.05. Thus, we can conclude that there was linear relationship between the Behavior Intention to Use technology and customs performance.

Table 4.13: ANOVA for Behavior Intention to Use

			Sum of Squares	df	Mean Square	F	Sig.
CP * BIUT	Between Groups	(Combined)	12.674	42	.302	.882	.668
		Linearity	.094	1	.094	.274	.602
		Deviation from Linearity	12.580	41	.307	.897	.644
	Within Groups		29.410	86	.342		
	Total		42.084	128			

4.4.3.4 ANOVA for Actual Use

The study also conducted the linearity between the Actual Use and customs performance. Based on the output, Actual Use of technology had a value Sig. of 0.704 which is greater than 0.05. Thus, we can conclude that there was linear relationship between the Actual Use of technology and customs performance.

Table 4.14: ANOVA for Actual Use

			Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
CP * AUT	Between Groups	(Combined)	18.507	58	.319	.947	.582
		Linearity	1.791	1	1.791	5.317	.024
		Deviation from Linearity	16.716	57	.293	.871	.704
	Within Groups		23.577	70	.337		
	Total		42.084	128			

4.4.4 Heteroskedasticity

Heteroskedasticity is used to examine whether there is a difference in the residual variance of the observation compared to one another. Based on the result obtained the value of sig. of perceived usefulness of computer use is 0.930, the sig. of perceived ease use technology variable is 0.843, the sig. of behavioural intention to use computer variable is 0.539 while the sig. of actual use of technology acceptance variable is 0.002. Since sig. value of the variables is greater than 0.05 for the three variables, that is, perceived usefulness, perceived ease use and behavioural intention to use computer it can be concluded that there is no Heteroskedasticity problem. However, since the sig. value for the actual use of technology is less than 0.05, it can be concluded that there was Heteroskedasticity problem. However, the problem was not likely to affect the accuracy of the results since it was present in only one variable.

Table 4.15: Test of Heteroskedasticity

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	.807	.331		2.440	.016
	PUT	.005	.059	.008	.088	.930
	PEUT	.012	.061	.017	.198	.843
	BIUT	.037	.060	.053	.617	.539
	AUT	-.207	.065	-.273	-3.163	.002

4.5 Inferential Statistics

This section provides results on inferential statistics: correlation and regression. These results are important in establishing the relationship between the independent variables and the dependent variable.

4.5.1 Correlation Analysis

Table 4.16 presents results on the correlation between perceived usefulness, perceived ease of use, behavior intention to use, actual use of technology and customs performance in Malaba and Busia One-Stop Border Posts.

Table 4.16: Correlation Matrix

		CP	PUT	PEUT	BIUT	AUT
CP	Pearson Correlation	1				
	Sig. (2-tailed)					
PUT	Pearson Correlation	.644**	1			
	Sig. (2-tailed)	.000				
PEUT	Pearson Correlation	.708**	.770**	1		
	Sig. (2-tailed)	.000	0			
BIUT	Pearson Correlation	.552**	.764**	.756**	1	
	Sig. (2-tailed)	.000	0	0		
AUT	Pearson Correlation	.626**	.797**	.756**	.780**	1
	Sig. (2-tailed)	.000	0	0	0	

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

The findings in Table 4.16 indicate that perceived usefulness of technology and customs performance are positively and significantly correlated (r=.644**, p=0.000). Further, results reveal that perceived ease of use of technology and customs performance are positively and significantly correlated (r=.708**, p=0.000). In addition, results show that behavior intention to use technology and customs performance are positively and significantly correlated (r=.552**, p=0.000). Finally, the findings indicate that actual use of technology and customs performance in Malaba and Busia One-Stop Border Posts are positively and significantly correlated (r=.626**, p=0.000). The above correlation findings imply that an increase in technology adoption is associated with an increase in customs performance in Kenya.

4.5.2 Regression Analysis

Table 4.17 indicates the fitness of regression model results, which shows an R square of 0.763. This means that jointly, perceived usefulness, perceived ease of use, behavior intention to use, actual use of technology would explain 76.3% of total changes in the dependent variable, which is customs performance. This implies that technology adoption elements: perceived usefulness, perceived ease of use, behavior intention to use, actual use of technology are crucial in influencing customs performance in Kenya.

Table 4.17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874[a]	.763	.756	.28338

a Predictors: (Constant), AUT, PUT, PEUT, BIUT

Further, Table 4.18 presents result on the analysis of variance (ANOVA). The results revealed that the model linking independent variables to the dependent variable was significant. This was supported by the F statistic of 99.952 and the reported p value of 0.000 at 5 percent critical point. The finding implies that technology adoption elements are good predictors of customs performance in Kenya.

Table 4.18: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.107	4	8.027	99.952	.000[b]
	Residual	9.958	124	.080		
	Total	42.065	128			

a Dependent Variable: CP

b Predictors: (Constant), AUT, PUT, PEUT, BIUT

Table 4.19: Regression of Coefficients

In addition, Table 4.19 provides regression of coefficient results, which helps to establish the unit effect of the independent variables on the dependent variable.

Variables	β	Std. Error	Beta	t	Sig.
(Constant)	-.016	.157		-.103	.918
PUT	.280	.084	.246	3.340	.001
PEUT	1.838	.166	1.754	11.104	.000
BIUT	2.267	.232	2.315	9.782	.000
AUT	1.101	.266	1.023	4.139	.000

a Dependent Variable: CP

Model

$\mathbf{Y= \beta_0 +\beta_1 X_1 +\beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 +\varepsilon}$

Customs Performance = -.016+0.28 Perceived Usefulness+1.838 Perceived Ease of Use + 2.267 Behavior Intention to Use + 1.101 Actual Use

Findings in Table 4.19 indicate that perceived usefulness of technology and customs performance have a positive and significant relationship (β1=0.28, p=0.001). This means that a unit increase in perceived usefulness of technology adoption would result to an improvement in customs performance by 0.28 units. Furthermore, from this finding, the null hypothesis (H_{O1}) that perceived usefulness of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts was rejected at 5 percent significance level.

The findings also reveal that perceived ease of use of technology and customs performance has a positive and significant relationship (β2=1.838, p=0.000). This means that a unit increase in perceived ease of use of technology would result to an improvement in customs performance by 1.838 units. The findings led to the rejection of the null hypothesis (H_{O2}) that Perceived ease of use of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts at 5 percent significance level.

Further, the results show that behavior intention to use technology and customs performance have a positive and significant relationship (β3=2.267, p=0.000). This means that a unit increase in behavior intention to use technology would result to an improvement in customs performance by 2.267 units. The results led to the rejection of

the hypothesis (H_{O3}) that behavior intention to use technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts at 5 percent significance level.

In addition, the results indicate that actual use of technology and customs performance has a positive and significant relationship ($\beta 4=1.101$, $p=0.000$). This means that a unit increase in actual use of technology would result to an improvement in customs performance by 1.101 units. The findings led to the rejection of the null hypothesis (H_{O4}) that actual use of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts at 5 percent significance level.

Table 4.20: Summary: Hypotheses Testing

No	Hypotheses	P value	Decision
H01:	Perceived usefulness of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts	0.001<0.05	Reject
H02:	Perceived ease of use of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts	0.000<0.05	Reject
H03:	Behavior intention to use technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts	0.000<0.05	Reject
H04:	Actual use of technology has no significant influence on customs performance in Malaba and Busia One-Stop Border Posts	0.000<0.05	Reject

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings, the discussions, the conclusions and recommendations of the study based on the objectives of the study. The chapter also presents the suggestions for further studies.

5.2 Summary of the Findings

The study aimed to investigate the influence of perceived usefulness of technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs), perceived ease of use of technology, behavior intention to use technology and actual use of technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs).

The first objective of the study was to establish the influence of perceived usefulness of technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs). Descriptive results indicated that majority of the respondents noted that the system improves their productivity, effectiveness as well as overall performance. Further, through regression results, the research established that perceived usefulness of technology has a positive and significant influence on customs performance in Malaba and Busia One-Stop Border Posts.

This finding agrees with outcomes from several studies, who also found that perceived usefulness plays a critical role in influencing performance (Sun & Mouakket, 2015; Kim,

2014; Barnes & Vidgen, 2014; Rana et al., 2015; Lee & Lehto, 2013; Revels et al., 2010; Roca et al., 2006; Konradt et al., 2006).

However, this study finding was contrary to that of Hong et al. (2006) who found that in the context of information technology usage there is no relationship between perceived usefulness and user satisfaction.

The second objective of the study was to determine the effect of perceived ease of use of technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs). Descriptive results indicated that the respondents averagely agreed that they find the system easy to use, the system is fast and time saving, it is flexible to work with and it is also user friendly. Further, through regression results, the research established that perceived ease of use of technology has a positive and significant effect on customs performance in Malaba and Busia One-Stop Border Posts.

This finding is consistent with what previous researchers also found. Several studies have proven that the perceived ease of use factor plays a major role in the performance context (Faqih, 2016; Koksal, 2016; Mutahar et al., 2016; Tarhini et al., 2013; Iqbal & Qureshi, 2012; Parveen & Sulaiman, 2008). Further, (Bhatiasevi & Yoopetch, 2015; Kim, 2014; Lee et al., 2011; Lee, 2009; Ha & Stoel, 2009; Luarn & Lin, 2005) found that there is a positive relationship between perceived ease of use and performance. Similarly, Kim *et al*. (2007) consider that a positive relationship between the perceived ease of use and performance seems to exist in the context of internet technology.

The third objective of the study was to examine the influence of behavior intention to use technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs). Descriptive results indicated that majority of the respondents tend to use technology in clearance of goods in the custom, use of technology in custom department in the border enhance operation of the custom department and they use multimedia materials to provide multi-approaches on custom department operations. Further, through regression results, the research established that behavior intention to use technology has a positive and significant influence on customs performance in Malaba and Busia One-Stop Border Posts.

This finding agrees with that of Mark (2019), who examined online user's behavioral intention to utilize the governments' websites and their electronic services and the results suggest that there were highly significant, direct effects from the UTAUT constructs, where the utilitarian motives predicted the online users' behavioral intentions to use e-gov.

The fourth objective of the study was to examine the influence of actual use of technology on customs performance in Malaba and Busia One-Stop Border Posts (OSBPs). Descriptive results indicated that majority of the respondents consider the use of technology in custom department as good, using of technology is clearance of goods in custom department is favorable, it is valuable to use technology in the custom department and it is a trend to use technology in all custom department. Further, through regression

results, the research established that actual use of technology has a positive and significant influence on customs performance in Malaba and Busia One-Stop Border Posts.

This finding concurs with that of Norzaidi and Salwani (2009), who indicated that there is a positive impact of actual usage on individual performance. The current study found similar results that actual use of technology positively impacts on customs performance.

5.3 Conclusion

Based on the findings, the study concluded that perceived usefulness, perceived ease of use, behavior intention to use, actual use of technology have a positive and meaningful influence on customs performance in Malaba and Busia One-Stop Border Posts. The study further concludes that behavior intention to use technology best explains customs performance, followed by perceived ease of use of technology, then actual use of technology, and lastly perceived usefulness of technology. The implication of the findings is that technology adoption plays a critical role in enhancing customs performance in Malaba and Busia One-Stop Border Posts, in Kenya.

5.4 Recommendations

From the study findings, the researcher made several recommendations.

The study established that perceived usefulness of technology had a positive and significant influence on customs performance. This means that perceived usefulness of

technology is crucial in determining customs performance. Therefore, the study recommends the need for management of Malaba and Busia One-Stop Border Posts to develop programs that will train customs employees on the usefulness of use of technology. This will lead to improved productivity, effectiveness and overall performance.

Further, the study found that perceived ease of use of technology had a positive and significant effect on customs performance. In line with this finding, the study recommends that management of both Malaba and Busia One-Stop Border Posts should train their employees on the ease of use of technology. This is expected to make the use of the system easy, fast, flexible and user friendly.

In addition, the study concluded that behavior intention to use technology had a positive and significant influence on customs performance. This implies that behavior intention to use technology is critical in enhancing customs performance. The study recommends the need for management of both Malaba and Busia One-Stop Border Posts to inculcate a culture of use of modern technology in their employees. This will enable employees to develop intentional behavior to use the system.

Finally, the study established that actual use of technology had a positive and significant influence on customs performance. The study recommends that management of Malaba and Busia One-Stop Border Posts should put measures in place to ensure that there is

actual use of modern technology by the employees. This is likely to boost customs performance in the two border posts.

5.5 Suggestion for further studies

This study examined influence of technology adoption on customs performance in Kenya with focus to Malaba and Busia one-stop border posts. Other studies can consider the influence of technology adoption on performance of other One Stop Border Posts.

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Appendix I: Introductory Letter

Dennis Mutunga

P.O Box 60365 – 00200,

Nairobi – Kenya.

2nd August 2019

Dear Respondent,

I am a student of Moi University pursuing Masters in Tax and Customs Administration. I am carrying out a research entitled: **Influence of Technology Adoption on Customs Performance in Kenya: A Case of Malaba And Busia One-Stop Border Posts**

I would like to request you to participate in the study by filling in the questionnaire.

Your assistance will highly be appreciated.

Sincerely,

Dennis Mutunga

Student, Moi University

Masters in Tax and Customs

Appendix II: Questionnaires

Introduction

This is presented in four sections. Section one presents demographics, section two independent variables, and section three mediating variable. Section four presents dependent variable.

SECTION 1: DEMOGRAPHIC INFORMATION

The following demographic information will be kept in strict confidence and never be associated in any way with your survey information.

Age.

Below 25 years	[ ]	26 – 35	[ ]
36 – 45	[ ]	Above 45	[ ]

Gender.

Male	[ ]	Female	[ ]

Kindly indicate the department you are work at in OSBP?

Border management staff	[ ]	Customs	[ ]

Any other (specify)……

Indicate the position that you hold in your department?

……..

How long have you been working at the OSBP?

Below 1 year	[ ]	1 – 3 years	[ ]
3 – 5 years	[ ]	Above 5 years	[ ]

PART A: INDEPENDENT VARIABLE

Perceived Usefulness (PU)

Kindly indicate the extent to which the following aspects of Perceived Usefulness (PU) influence custom performance in One Stop Border Post in Malaba and Busia**.** Use a scale of 1-5 where 1-to very small extent, 2-small extent, 3-moderate extent, 4 great extent and 5 very great extent

	Statements	**1**	**2**	**3**	**4**	**5**
1	I find the system usefulness in my scope					
2	I find the system very efficient					
3	The system improves my effectiveness					
4	The system improves my productivity					
5	The system helps me improve my performance					

Perceived Ease of Use (PEOU)

Kindly indicate the extent to which the following aspects of Perceived Ease of Use influence custom performance in One Stop Border Post in Malaba and Busia**.** Use a scale of 1-5 where 1-to very small extent, 2-small extent, 3-moderate extent, 4 great extent and 5 very great extent

	Statements	**1**	**2**	**3**	**4**	**5**
1	I find the system easy to use					
2	I find the system fast and time saving					
3	The system is user friendly					
4	I find the system flexible to interact with					
5	My interaction with the system is clear					

Behavior Intention to Use

Kindly indicate the extent to which the following aspects of Behavior Intention to Use Technology and their influence on custom performance in One Stop Border Post in Malaba and Busia**.** Use a scale of 1-5 where 1-to very small extent, 2-small extent, 3-moderate extent, 4 great extent and 5 very great extent

	Statements	**1**	**2**	**3**	**4**	**5**
1	I tend to use technology in clearance of goods in customs					
2	I increase the use of technology in clearance of goods in border					
3	Using technology in custom department in the border enhance operation of the custom department					
4	I would love to use technology in the custom department					
5	I use multimedia materials to provide multi-approaches on custom department operations					

Actual Use of Technology

Kindly indicate the extent to which the following aspects of Actual Use of Technology and their influence on custom performance in One Stop Border Post in Malaba and Busia**.** Use a scale of 1-5 where 1-to very small extent, 2-small extent, 3-moderate extent, 4 great extent and 5 very great extent

	Statements	**1**	**2**	**3**	**4**	**5**
1	Using technology in custom department is suitable					
2	Using of technology is clearance of goods in custom department is favorable					
3	Using technology in the custom department has a positive					

	influence to me and enhances the performance in the department					
4	I think it is valuable to use technology in the custom department					
5	I think it is necessary to use technology in all custom department					

Performance of customs

Kindly indicate your level of agreement to the following measure of custom performance in One Stop Border Post in Malaba and Busia**.** Use a scale of 1-5 where 1-to very small extent, 2-small extent, 3-moderate extent, 4 great extent and 5 very great extent

	Statements	**1**	**2**	**3**	**4**	**5**
1	Through technology acceptance there is increased security of goods					
2	Time of clearance has decreased					
3	There is increase in volume of cargo as a result of ease of clearing goods					
4	Tax compliance rate has increased					
5	The e-clearance systems has shortened long procedures needed for paper documentation					

In your own opinion, indicate what should be done to enhance the custom performance through technology adoption approach?

……

……

THANKS FOR YOUR PARTICIPATION

Appendix III: Campus research letter

Kenya School of Revenue Administration

KENYA REVENUE AUTHORITY

ISO 9001:2015 CERTIFIED

REF: KESRA/NBI/036

14th August, 2019

TO WHOM IT MAY CONCERN

RE: REQUEST FOR RESEARCH PERMIT:
DENNIS MUSEMBI MUTUNGA- REG. NO. MU/KESRA/0031/2016

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 **"Influence of technology adoption in Customs Performance: A case of Malaba and Busia one stop border posts."**

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

Thank you.

Dr. Marion Nekesa PHD,
Head, Research
KESRA

KENYA SCHOOL OF REVENUE ADMINISTRATION
DEAN OF STUDIES
14 AUG 2019
ACADEMIC AFFAIRS DIVISION

P. O. Box 48240 – 00100, Nairobi **Email:** kesratraining@kra.go.ke **Tel:** +254715877535/9

Tulipe Ushuru Tujitegemee !

KENYA VISION 2030

Appendix IV: NACOSTI research letter

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **569950**

Date of Issue: **07/November/2019**

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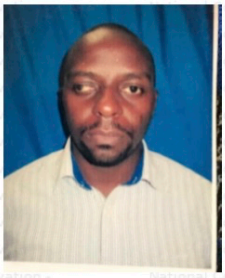

This is to Certify that Mr.. Dennis Dennis of Kenya School of Revenue Administration, has been licensed to conduct research in Busia on the topic: INFLUENCE OF TECHNOLOGY ACCEPTANCE ON CUSTOMS PERFORMANCE IN KENYA: A CASE OF MALABA AND BUSIA ONE-STOP BORDER POSTS for the period ending : 07/November/2020.

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