**EFFECT OF INFORMATION TECHNOLOGY ON TAX COMPLIANCE OF THE SELECTED LOGISTIC COMPANIES IN KENYA**

**By**

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**A THESIS PROJECT SUBMITTED IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS OF THE AWARD OF THE DEGREE** **OF** **MASTERS IN TAX AND CUSTOMS ADMINISTRATION** **TO THE SCHOOL OF BUSINESS AND ECONOMICS,**

**MOI UNIVERSITY**

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# DECLARATION

I declare that this research project is my original work and it has not been submitted for the award of any degree or diploma in any other institution.

Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MU/KESRA/105/0057/2020

I confirm that this project has been done by the candidate under my supervision as the University supervisor.

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# DEDICATION

This research project is dedicated to my family and friends for the encouragement and overwhelming support throughout the study.

# ACKNOWLEDGEMENT

I acknowledge my supervisor for accepting to guide me through this research project. I also acknowledge the colleagues whom we were in the same class, KESRA and Moi University fraternity for providing me with conducive environment throughout this process. Thanks all and God bless you.

# ABSTRACT

Tax compliance in the logistics industry is crucial due to the complex web of tax regulations that govern transportation and supply chain operations. In Kenya, logistic companies face several tax compliance challenges, including navigating complex international tax regulations, managing diverse tax jurisdictions, and coping with changing tax laws. This study aimed to examine the effectiveness of information technology on raising Tax compliance by Logistic companies in Kenya. The specific objectives of the study were; to examine the influence of IT usage, IT features and IT security on tax compliance by Logistic companies. The study was anchored by Technology Acceptance Model, Optimal Tax theory and Diffusion of Innovation theory. This study utilized explanatory research design. The unit of analysis was employees of the eight selected logistic companies. The unit of observation will be three hundred and eighty two (382) employees comprising of top managers, middle managers and support staff. Stratified purposive sampling technique was going to be used. Similarly, the sample size of one hundred and ninety six (196) will be computed using Yamane's formula. Data collection was achieved through use of qquestionnaires, which was piloted to test the validity and reliability of research instruments. Quantitative data was analyzed using descriptive statistics such as mean and standard deviation and presented in form of tables, pie-charts and bar-graphs. Inferential statistics such as correlation analysis and multiple regressions were used to determine the relationship between variables. The findings showed adjusted R2 = 0.114, which means that the predictor variables; IT system usage, IT system features and IT security explains 11.4% of the variability of tax compliance by logistic companies, which is a low effect. However, ANOVA showed that the model was statistically significant, F = 8.521, p = .000. This indicates that the model applied can statistically significantly predict tax compliance by logistic companies. Coefficients showed that that IT system usage influences tax compliance by 13.3% (β = 0.133, p=0.110>0.05), features of the IT system influences tax compliance by 29.1% (β = 0.291, p=0.818>0.05), while IT security influences tax compliance to a little extent, 0.1% (β = 0.001, p=0.520>0.05). Furthermore, hypothesis testing revealed that Information technology usage, features and security have significant effect on tax compliance by logistic companies (P-value=0.110>0.05), (P-value=0.818>0.05) and (P-value=0.520>0.05) respectively. This implies that tax payers consider tax system usage, features or functionalities and security features as factors that determine their tax compliance. This study recommended that KRA should ensure that their IT systems are easy to navigate and use; online system (i-tax and ICMS) should have relevant and secure features. This is to boost taxpayer's perception, and improve on the adoption and use which consequently improving tax compliance.

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# OPERATIONAL DEFINITION OF TERMS

**iTax** - Web-based system introduced by the Kenya Revenue Authority (KRA) to simplify the revenue collection in Kenya (Gitaru 2017).

**Information Technology (IT) usage** - refers to the use of computer-based systems and software applications to store, retrieve, manipulate, and communicate data or information. IT usage encompasses a wide range of activities including but not limited to the use of networks, data storage and retrieval systems, email, web browsers, and mobile applications (Holniker 2015)

**Information Technology (IT) features** – these are the hardware and software components of an IT system that enable users to use the system. This can include the user interface, hardware components, software features, data storage, and system performance. These features enable the system to meet the needs of the users and provide them with the tools they need to effectively and efficiently complete their tasks (Sani 2016).

**Information Technology (IT) security** – This is the practice of safeguarding digital data, information systems, and technology infrastructure from unauthorized access, cyber threats, data breaches, and other potential risks to ensure the confidentiality, integrity, and availability of sensitive information (Smith, 2021).

**Tax compliance** - This is the adherence to the administrative rules of lodging and paying taxes on time. This includes compliance with the reporting requirements, procedural rules and regulations. This entails filing tax returns on time, reporting all the income and claiming the right deductions and where taxes are due making tax payments on time full payment of all taxes due (Cummings, 2007).

**Tax Non Compliance** - This comprises both intentional evasion and unintentional non-compliance, which is due to calculation errors and an inadequate understanding of tax laws (Griffiths, 2005).

**Technology**  - Science or knowledge put into practical use to solve problems; it is the application of scientific knowledge and principles to create tools, devices, systems, and processes that serve various purposes, solve problems, or enhance human capabilities (Greg, 2020).

# ABBREVIATIONS AND ACRONYMS

**ANOVA** Analysis of Variance

**ETR** Electronic Tax Registers

**GST** Goods and Services Tax

**iCMS** Integrated Customer Management System

**ICT** Information Communication and Technology

**IT** Information Technology

**iTax** Integrated Tax

**KRA** Kenya Revenue Authority

**MANOVA** Multivariate Analysis of Variance

**NACOSTI** National Commission for Science and Technology

**OTF** Online Tax Filing

**OTR** Online Tax Registration

**OTRE** Online Tax Remittance

**RECTS** Regional Electronic Cargo Tracking System

**SME** Small and Medium Enterprises

**SPSS** Statistical Package for Social Sciences

**USA** United States of America

**VAT** Value Added Tax

# CHAPTER ONE

# INTRODUCTION

# Background to the Study

Tax compliance is a fundamental aspect of modern societies, serving as a means to finance public services and promote economic development (Bird & Zolt, 2015). The ongoing digitalization of the economy offers new opportunities for tax collection, but it also presents challenges and knowledge gaps. Effective tax compliance is essential for countries to achieve the tipping point for economic growth and development (Gaspar, Jaramillo, & Wingender, 2016). Tax compliance encompasses various elements, including accurate reporting of tax bases, correct computation of tax liability, and timely payment of taxes (Ahmed & Kedir, 2015). Monitoring and measuring tax compliance have traditionally been complex tasks, with the tax gap representing the difference between actual revenue collected and the amount that would be collected in a hypothetical scenario of 100% compliance (James & Alley, 2019).

In the United States, large logistics companies demonstrate a relatively high level of tax compliance, with a non-compliance rate of only 1.7% among the top 100 logistics firms (KPMG International, 2018). Similarly, China reports a tax compliance rate of around 90%, with particular success in value-added tax (VAT) and business income tax (BIT) compliance (OECD, 2017). European companies also exhibit strong compliance, with 97% of surveyed large companies reporting full compliance with tax regulations (European Commission, 2016). However, despite these positive trends, knowledge gaps persist regarding the effectiveness of information technology (IT) systems in enhancing tax compliance among logistics companies.

IT systems have become pivotal tools for tax authorities worldwide. These systems aim to streamline tax collection processes, improve tax compliance, and increase overall efficiency (Gross, 2018). The effectiveness of IT systems, though, is a complex matter, and there remains uncertainty in identifying suitable measures for assessing their efficiency (Pather et al., 2014). While effectiveness in IT systems denotes the ability to achieve objectives within defined constraints (Thong & Yap, 2016), the specific impact of IT on tax compliance and revenue collection is not always straightforward to measure.

In developing countries, IT systems in tax administration have often faced challenges and limited success, primarily due to political obstacles and a lack of political will (Pinhanez, 2017). Technology can help bridge infrastructure gaps and improve tax compliance but cannot address the critical political issues that hinder effective tax collection (Slemrod & Yitzhaki, 2018). Moreover, the costs and benefits of technological changes in tax systems vary across countries and development levels (Allingham & Sandmo, 2016). Developing nations often grapple with resource constraints and more difficult tax environments, making it essential to carefully assess the potential of IT-driven solutions.

Tax evasion and avoidance are persistent issues globally, driven by factors such as corruption, weak tax systems, and taxpayers' negative attitudes (Venter, 2016). Small and medium-sized businesses in Nigeria, for example, evade taxes due to factors like corruption and an unfair tax system (Akinyomi, 2016). Tax authorities must leverage IT systems to detect and deter such practices effectively (Mughal & Akram, 2017). However, these challenges underscore the need for comprehensive strategies that address both technical and non-technical aspects of tax compliance.

In Kenya, tax compliance issues have resulted in budgetary shortfalls, prompting the Kenya Revenue Authority (KRA) to explore IT solutions such as the iTax platform, big data analytics, and blockchain technology (KRA, 2020). These initiatives are part of a broader strategy to enhance tax compliance and revenue collection, aligning with KRA's corporate priorities (KRA, 2020). Nevertheless, the effectiveness of these IT systems in improving tax compliance among logistics companies in Kenya remains an area where further research is needed.

Thus, tax compliance is vital for the functioning of modern societies, and the shift towards digitalization presents opportunities and challenges for tax authorities. While some countries and large logistics companies exhibit high tax compliance rates, the effectiveness of IT systems in enhancing tax compliance remains a complex and evolving topic. Developing countries face unique challenges, including political obstacles and resource constraints. Further research is necessary to evaluate the impact of IT systems on tax compliance, particularly among logistics companies, and to address knowledge gaps in this critical area of taxation.

The effectiveness of Information Technology (IT) systems is intricately linked to tax compliance, as evidenced by various empirical studies. Smith et al. (2018) and Johnson and Wang (2020) have demonstrated that the adoption of advanced IT solutions, such as accounting software and data analytics tools, significantly improves the accuracy of tax reporting. These systems automate complex calculations and streamline data entry processes, reducing errors in financial documentation. Moreover, Jones and Patel (2019) and Chen *et al*. (2021) emphasize the role of electronic filing systems, an integral component of IT, in expediting the tax submission process and ensuring timely compliance. The conceptual interlink lies in the capacity of IT systems to enhance efficiency, accuracy, and timeliness in tax-related processes, ultimately contributing to improved overall tax compliance. As IT systems evolve, their effectiveness becomes pivotal in shaping the landscape of modern tax administration, necessitating ongoing consideration by policymakers and tax authorities to harness the full potential of technology in fostering compliance.

# 1.1.1 Logistic companies in Kenya

Logistics companies in Kenya play a pivotal role in the country's economy and trade due to Kenya's strategic location as a gateway to East and Central Africa. These companies are responsible for the efficient movement of goods and materials across the country and the broader region, facilitating trade and economic development. According to KPMG (2018), Kenya's logistics sector has experienced significant growth in recent years, driven by increased foreign investment, infrastructure development, and trade expansion. The country's key logistics hubs, including the Port of Mombasa, Jomo Kenyatta International Airport, and the Inland Container Depots, have seen significant improvements to handle the growing demand for transportation and distribution services. Additionally, Kenya's logistics industry has been influenced by the adoption of digital technologies to enhance supply chain efficiency. Companies in the sector have increasingly embraced information technology solutions, such as track-and-trace systems and electronic cargo management, to streamline operations and improve customer service (UNCTAD, 2019).

Furthermore, the logistics landscape in Kenya is characterized by a mix of multinational logistics providers, domestic companies, and small and medium-sized enterprises (SMEs). These logistics players offer a range of services, including freight forwarding, warehousing, transportation, and customs clearance, contributing to the country's trade facilitation efforts (UNCTAD, 2019). As logistics continues to be a critical component of Kenya's economic development and regional trade, it faces challenges such as infrastructure gaps, regulatory issues, and the need for continuous adaptation to changing global trade dynamics. Despite these challenges, the logistics sector remains dynamic and essential to Kenya's position as a trade and logistics hub in the East African region.

# Statement of the Problem

For many years, tax administration in developing countries has been plagued with problems, most of which were attributed to the lack of or inadequate application of Information Technology in tax administration. However, with diffusion of IT systems in tax administration, today majority of tax authorities in these countries have digitalized their operations. Consequently, IT systems are meant to improve the efficiency of tax collection by authorities. However, the effectiveness of information technology in tax administration would be a welcome change in the system as this will greatly enhance the efficiency in tax compliance. This has now grown to the level that currently approximately one out of every five individual taxpayers is now filing electronically.

However, tax non-compliance by most companies in Kenya is still worrying despite use of technology being mandatory in registration, filing tax returns and paying taxes due by taxpayers. This is manifest in failure by KRA to meet its targets over years. Statistics from National Treasury analyzed by Kenya National Bureau of Statistics (KNBS) in their annual economic surveys between 2014 and 2018 show that KRA did not achieve its projections for that period. Year 2013/2014 KRA collected Kshs (KRA 2015). 911.8B against projection of Kshs.945.2B, year 2014/2015 collection of Kshs.1, 022.1B against projection of Kshs.1,130.1B, and year 2015/2016 collection of 1,136.9B against projection of 1, 289.1B. Year 2016/2017 actual collection of Kshs. 1,277.2B against Kshs.1, 338.3B projected and year 2017/2018 a provisional collection of Kshs.1, 341.4B against a budget of Kshs.1, 466.2B (KRA 2019).

Globally, previous studies on the adoption of information technology in tax administration have showed a positive impact on the cost of tax administration and compliance. Kenyan government through KRA has implemented variety of digital systems like itax, simba system, Electronic Cargo Tracking System, Customs Oil Stocks Information System, Valuation System, Cargo Manifest among others. Despite mandatory use of technology in tax processes such as registration, filing, and payment, tax non-compliance among companies in Kenya remains a concern, leading to revenue collection shortfalls (KRA, 2019).

The gap between KRA's revenue projections and actual collections, as evidenced by data from the National Treasury and the Kenya National Bureau of Statistics, highlights this ongoing issue. While global studies have shown the positive impact of IT adoption in tax administration on cost reduction and compliance, the specific effectiveness of the various IT systems implemented by the Kenyan government, such as iTax, the Simba system, and the Electronic Cargo Tracking System, on tax compliance among logistics companies is still unclear. This study aims to fill this contextual knowledge gap by conducting a comprehensive investigation into the effectiveness of IT systems in improving tax compliance within the logistics sector in Kenya.

# Objectives of the Study

## General Objective

The general objective of this study was to investigate the effect of technology systems on tax compliance by logistic companies in Kenya.

## Specific Objective

The study was guided by the following specific objectives:

1. To examine the influence of Information Technology usage on tax compliance by logistic companies in Kenya.
2. To determine the influence of Information Technology features on tax compliance by logistic companies in Kenya.
3. To determine the influence of Information Technology security on tax compliance by logistic companies in Kenya.

# Hypotheses

The study sought to test the following hypotheses:

**H01**: Information Technology usage has no significant effect on tax compliance by logistic companies in Kenya;

**H02**: Information Technology features have no significant effect on tax compliance by logistic companies in Kenya;

**H03**: Information Technology security has no significant effect on tax compliance by logistic companies in Kenya.

# Significance of the Study

The study findings is beneficial to the management of Kenya Revenue Authority in understanding how information technology influences tax compliance and improvement measures can be made in order to have better coordination within the organization so as to realize the company’s goals and objectives. This study also points out the challenges faced by taxpayers, with regards to the use of new tax remittance platforms thus bringing greater efficiency in tax collection.

Additionally, the study findings will inform the policy makers on the areas and aspects of revenue collection that require policy interventions for the purpose of improving efficiency in tax collection and compliance by taxpayers. The study also benefits the government as it provides information on the organization to provide significance support on revenue collection. It will also provide a reference point during decision making process, particularly regarding the influence of IT systems on raising the efficiency of tax collection in Kenya.

Finally, the findings will be a reference point by researchers and scholars who might wish to undertake further studies on the same field. Researchers and scholars may also utilize the findings so as to identify further research areas on related studies by identifying topics that require further research and giving a review of the empirical literature so as to establish study gaps

# Scope of the Study

This study focuses on examining the effectiveness of Information Technology (IT) systems in enhancing tax compliance within the logistics sector in Kenya. While the Kenyan government and the Kenya Revenue Authority (KRA) have implemented various digital systems, including iTax, the Simba system, and the Electronic Cargo Tracking System, their impact on tax compliance among logistics companies remains unclear. Despite mandatory use of technology in tax processes, tax non-compliance among businesses in Kenya persists, leading to revenue collection shortfalls. Therefore, this research aims to bridge this knowledge gap by conducting a thorough investigation into the actual effectiveness of these IT systems in promoting tax compliance specifically within the logistics industry. The study adopted explanatory research design and used questionnaires to collect data from employees of the selected logistic companies.

# CHAPTER TWO

#  LITERATURE REVIEW

# Introduction

This chapter comprises of the literature review on the effectiveness of IT systems on improving tax collection. It provides concepts of effectiveness of tax systems, efficiency in tax collection, theoretical framework, empirical studies and conceptual framework.

# 2.2 Concept of IT systems in Tax administration

The use of automated systems has been proven to be capable of introducing massive efficiencies to business processes at a minimal cost (Wasao, 2014). Due to the bureaucratic structure of government which is costly to manage with little or no result, many tax authorities across the world have turned to e-government led solutions like electronic tax filing (e-filing), based on the arguments that it enhances the delivery of public services and fiscal profundity without incurring costly recurring overheads (Harrison & Nahashon, 2015).According to United Nations (2017), tax systems (also known as e-taxation) involves a process where tax administration activities (registration, filing, reporting etc) are carried out using IT system and through the internet, usually without the need to submit any paper return; it encompasses the use of internet technology, the World Wide Web and Software and wide range of i-tax systems.

Dowe (2018) disclosed that tax authorities around the world are using electronic tax administration systems to interact with taxpaying public in tax collection, administration and compliance settings so as to improve effectiveness and efficiency in tax collection. According to Olaoye (2018), an effective tax system must possess the following principles: efficacy; should advocate ethics of professionalism transparency, accountability, probity and efficiency in tax collection; simplicity, the tax system and the tax law should be simple, flexible and adjustable, so as to compliance by tax payers and efficiency in operation by tax administrators; neutrality which implies that a good tax system should be free from any form of partiality. Similarly, an effective tax system should make the economic situation better off and not worse off. It must not affect adversely the economic contribution of the tax payer.

Dowe (2018) argued that the basic prerequisites for implementing effective tax systems, that provides successful e-filing and e payment are: a reliable and accessible internet service; cooperative financial institutions; an IT oriented public; and adequate financing to set up the appropriate infrastructure in tax offices. Ideally, the setting of an e-filing and e-payment systems should form part of a comprehensive IT system design, development and implementation strategy (Gekonge and Wallace 2016)., which correlates the view of Muita (2011) that for e-filing to effectively take off; skills, infrastructure and a conducive business environment are needed.

The implementation process for effective electronic tax systems begins with the development of a strategic business plan – documenting the ideas and actions, desired outcomes and the time frame for each component, taking into account the strengths and weaknesses of the tax administration and environmental opportunities and threats (Efunboade, 2014). The plan should also document the implementation strategy including the implementation approach. In addition to the above, an efficient and effective e-taxations system needs constant electricity supply, organized seminars for tax payers and tax officers on the usage, secured, user friendliness and easy assessable website and law (Harrison, and Nahashon 2015). Thus, effective tax system should generate sufficient resources for government to provide basic public goods and services.

# 2.3 Concept of Tax compliance

Ola (2017) conceptualized that taxation is a powerful and potential fiscal stabilizer employed by government of nations to plan development policies. The prime aim of tax collection in most nations of the world is essentially to generate revenue for government expenditure on social welfare such as provision of defense, law and order, health services and education. Revenue from taxation can also be spent on capital projects otherwise called consumer expenditure, creating social and economic infrastructure which will improve the social life of the people (Ariwodola, 2010). In order to achieve the excellence in the tax collection process, tax authorities needs to focus on the customer/taxpayer (Kane *et al*., 2014).

Thus, technology becomes necessary for the tax collection activity as large sets of data need to be processed (Andarias, 2019). As a consequence, the most essential concepts are ‘reducing the period of time between when the tax is generated and the moment it is paid’, ‘decreasing the number of the human errors by automating ordinary procedures’, ‘therefore making possible to pay the tax any time and almost anywhere’, and ‘allowing any employee to help every customer at the office’ (Reinganum and Wilde, 2016). This can be achieved through efficient tax systems.

Tax compliance entails: timeliness in paying tax, reducing life of tax, reducing errors in procedures, increasing multi-tasking levels of tax officers and facilitating taxpayers in complying with tax regulations (Erard, 2015). In the reduction of the ‘life-time of the tax’, proper technology needs to ensure that the time period between the date a property or service become liable for tax and the payment of this tax or rate is reduced to the minimum. Also, it also involves technological advances in automation processing, mass data processing and elimination of administrative challenges and non-compliance (Jiménez, Sionnaigh and Kamenov, 2013).

Implementation of Information technology systems in tax collection aims at enhancing efficiency and also ensure reduction of errors in procedures, gathering of data automatically, as well as avoidance of duplication, storage of images of documents, minimize tax evasion and avoidance (Winter & Taylor, 2015). Additionally an effective tax system increases the multitask-level of personnel, as well as the integration of all procedures in a single information system and also the design of appropriate software enables any employee to provide all service at a ‘single counter’ (Gil-García & Pardo, 2015).

Tax compliance is therefore desired by the tax authorities. It is the process of fulfilling tax payer’s civil obligation for tax payment, filing of tax returns and explanations required by tax authority in a timely manner (Daniel, Akowe & Awaje, 2016). Tax compliance is the accurate reporting of income and claiming of expenses in accordance with stipulated tax laws (Sapiei, Kasipillai & Eze, 2014). From taxpayer’s point, adoption of IT systems have boosted tax compliance and brought numerous advantages such as less paperwork, rationalization as well as simplification of tax obligations, elimination of tax audits on companies, expedition of procedures controlled by tax administration and enhanced competitive edge with decrease in tax evasion (Winter & Taylor, 2015).

# 2.4 Theoretical Framework

This study is guided by Technology Acceptance Theory, Optimal Tax theory and Diffusion of Innovation Theory.

# 2.4.1 Technology Acceptance Model (TAM) Theory

Technology Acceptance Model (TAM) is a theory describing the perception of technology users. Davis (1986) created this model to explain the effects of system characteristics on users of computer-based Technology Systems. TAM is the most widely used model for identifying factors contributing to technology acceptance. The theory suggests that, when users are presented with a new piece of technology, several factors influence their decision about how and when they will use the technology (Ardiansah, Chariri, Rahardja & Udin, 2020). The goal of TAM is to explain the determinants of general computer acceptance and be able to explain user behavior across a broad range of end-user computing technologies and user populations (Rondan-Cataluña, 2015).

Of all the theories, the Technology Acceptance Model (TAM) is considered the most influential and commonly employed theory for describing an individual's acceptance of information systems. According to TAM, information technology adoption is influenced by two perceptions: usefulness and ease of use. It specifies the relationships among perceived usefulness, perceived ease-of-use, attitude toward computer use, and intention to use technology (Teo, 2011).

This model shows that, when users are presented with new technology, some factors influence their decisions about how and when they will use them. The two most important factors are perceived usefulness and perceived ease-of-use. Thus, according to TAM, user acceptance of an information system depends on two factors, namely, perceived usefulness and perceived ease-of-use. Together, these factors determine attitudes toward the use of technology, where it can affect the behavioral intention to use, leading to the actual use of the system. Since the theory addresses the concept of digital technology acceptability, the theory is pertinent to this study.

Users will make use of a certain technology if they believe it will offer beneficial results. This theory demonstrates the perception of digital tax users on the perceived usefulness, usability and issues that matter security. It demonstrates that for a digital system to be fully accepted and used by the users there is need to always ensure that the system is easy to use and users have accepted and perceive it to be useful to them. The theory backs up the link between taxpayer acceptance of technology and tax compliance by logistic companies.



### Figure 2.1 - Technology Acceptance Model

**Source:** Davis F, Bagozzi P, & Warshaw R (1989).

The Technology Acceptance Model (TAM) provides valuable insights into understanding how IT systems influence tax compliance. TAM examines users' acceptance of technology based on perceived ease of use and perceived usefulness. In the context of a study on IT systems and tax compliance, TAM can help researchers assess how taxpayers perceive the user-friendliness and practicality of these systems for tax-related tasks. By investigating taxpayers' attitudes and their willingness to adopt IT systems for tax compliance, TAM aids in evaluating the effectiveness of technology-driven approaches in encouraging tax compliance behavior. This model enables researchers to explore the alignment between IT system design, user perceptions, and actual compliance outcomes, offering a holistic view of the impact of IT systems on tax compliance.

The Technology Acceptance Model (TAM) serves as the foundational theory/model for this study; TAM focuses on users' acceptance and adoption of technology, emphasizing perceived ease of use and usefulness. In the context of logistics and tax compliance, TAM provides a lens to examine how employees within these companies perceive and embrace IT systems, influencing their compliance behaviors. This model helped the researcher understand the dynamics between technology adoption, user attitudes, and the effectiveness of IT systems in enhancing tax compliance in logistics industry.

# 2.4.2 Optimal Tax theory

This study will be guided by optimal tax theory based on the foundational work of Ramsey *et al.* (1928). The standard theory of optimal taxation posits that a tax system should be chosen to maximize a social welfare function subject to a set of constraints. The social planner is posited as a utilitarian: that is, the social welfare function is based on the utilities of individuals in the society. Optimal tax theory is concerned with the ideal level and form of economic redistribution. The optimal tax theory seeks to determine how government can maximize social welfare through taxes and transfers, without increasing the sacrifice on the part of tax payers.

Whether conscious or not, optimal tax theory actually embodies a resource egalitarian view of distributive justice to a large extent (Holniker, 2005). However, the reasoning behind the theory’s principles emphasizes incentives, efficiency, and the information that choices reveal about individual wellbeing. This theory indicates that optimal taxation is a function of tax charge and how this tax is collected to ensure fair redistribution of welfare. This theory was relevant to this study since ETRs were introduced with the aim of increasing tax administration efficiency. This indicates that if ETRs reduce tax audit cost and time it would also contribute to VAT being optimal.

Optimal Tax theory, a fundamental concept in tax economics, can significantly inform a study on the effect of IT systems on tax compliance. By applying the principles of Optimal Taxation, researchers can evaluate whether the introduction of IT systems enhances the efficiency and equity of tax collection. This theory provides a framework for assessing whether the benefits derived from IT adoption, such as cost reduction and streamlined processes, align with the goal of achieving optimal tax policy outcomes, including revenue maximization and minimizing distortions in economic behavior. The study can use this theoretical foundation to examine whether IT systems contribute to achieving an optimal balance between tax revenue collection and the economic welfare of taxpayers, shedding light on the broader implications of technology-driven tax compliance improvements.

# 2.4.3 Diffusion of Innovation Theory

Diffusion of Innovation theory, founded by Everett M. Rogers, is a well-established framework in the field of communication and sociology. This theory explores the process through which new ideas, innovations, or technologies spread and are adopted within a society or among a group of people. Key concepts of this theory include the characteristics of the innovation itself, the adopter categories (innovators, early adopters, early majority, late majority, and laggards), the stages of the adoption process (awareness, interest, evaluation, trial, and adoption), and factors influencing adoption such as relative advantage, compatibility, complexity, trialability, and observability. Diffusion theory helps us understand how innovations gain acceptance over time, offering insights into the dynamics of innovation adoption and the role of communication channels, social systems, and individual attitudes in this process (Rogers, 1962).

Diffusion of Innovation theory provides a valuable framework for understanding and studying the impact of IT systems on tax compliance. In the context of this study, the theory helps elucidate how the adoption and acceptance of IT systems, such as those implemented for tax administration (e.g., iTax), evolve within the realm of tax compliance by logistics companies. Rogers' theory posits that potential adopters of innovations go through distinct stages, from awareness to adoption, influenced by factors like the innovation's relative advantage and compatibility with existing practices. When applied to IT systems in tax compliance, it allows researchers to examine how these innovations spread among logistics companies, identifying early adopters and the factors that motivate or hinder their adoption.

Furthermore, the theory helps explore the complexity of IT system adoption within the specific tax compliance context, considering factors like trialability and observability. It helps assess how the logistics sector's social system, including industry norms and peer influence, impacts the adoption process. The Diffusion of Innovation theory assists in gauging not only the extent of adoption but also the pace at which these systems are integrated into tax compliance practices. By employing this theory, researchers can gain insights into the dynamics and challenges associated with the adoption of IT systems for tax compliance, ultimately contributing to a comprehensive understanding of the effectiveness and outcomes of these innovations in enhancing compliance behavior among logistics companies.

# 2.5 Empirical literature review

Automation system helps to improve revenue collection. This is because they are based on the electronic payment system via applications such as toll revenue collection, automatic fare collection, bus revenue system and parking system (Gil-García & Pardo, 2015). Additionally by automating revenue collection, service providers are in better audit trail since all transactions captured can be detailed by time, whom and where (Sani, 2016). This prevents revenue loss through abuses as all moves are recorded electronically. Automation also provides huge transactions that need to be handled efficiently. According to Sani (2016), automating revenue collection is key especially within the revenue collection agencies, which therefore requires fast and efficient output, as there will always be a trade-off between control and operational needs.

Ajape, Afara and Uthman (2017) study examined the influence of E-tax System on Tax administration and Tax revenue generation: Insights from Lagos State Internal Revenue Service. Survey research design was adopted using a structured five point Likert-scaled questionnaire to obtain data. Data gathered were analyzed using descriptive statistics, while hypotheses were tested using the Multivariate Analysis of Variance (MANOVA). The study revealed that respondents do not differ that e-tax system has enhanced revenue generating potentials of Lagos State and as well, or has positive impact on the efficiency of tax administration.

Mallick (2020) carried out an empirical analysis for India on whether governance quality and ICT infrastructure influence the tax revenue mobilization during the post-liberalisation period of 1990–1991 to 2017–2018.Considering that the recently implemented Goods and Services Tax (GST) is not entirely different from the previous value added tax (VAT) regime in terms of revenue collections at each stages on the value added of manufacturing and sales but an extension of VAT (which existed since 2005 by most of the states and Union Territories until 1st July 2017) by bringing the services into tax net. The findings reveal that ICT infrastructures and governance quality have no significant positive effect on the overall tax revenue collections. Olaoye and Kehinde (2017) study investigated the impact of information technology on tax administration in Southwest, Nigeria Descriptive research design was employed, of which questionnaire was used to gather data and analysed with multiple regression and pearson product moment correlation.

The study revealed that information technology (Online Tax Filing-OTF, Online Tax Registration-OTR and Online Tax Remittance-OTRE) affect tax productivity. The study concluded that information technology enhance the level of tax productivity and administration. Gitaru (2017) study explored the impact of system automation on revenue collection in Kenya Revenue Authority: A case study of SIMBA. The study used secondary data collection. The study utilized KRA Customs data for ten financial years after Simba System. The period selected was from July 2007 to June 2016.The data was analyzed using Gretl and presented in figures and tables. The study findings also established that the revenue collected increased at an increasing rate after the implementation of Simba system. As a result of system, the shilling experienced a strong local currency then depreciated.

Kamau (2014) study examined the adoption of technology as strategic tool in enhancing tax compliance in Kenya: A case study of large taxpayers of Kenya Revenue Authority. The research used a descriptive research design. It relied mainly on primary sources of data. The sampling techniques used in the study were stratified and random sampling techniques. The population comprised of the large taxpayers of Kenya Revenue Authority. The findings of the study were that the adoption of technology does impact on the tax compliance levels of the large taxpayers. The adoption of technology as a strategic tool by The Kenya Revenue Authority has led to increased compliance levels by the large taxpayers.

Akpubi and Igbekoyi (2019) study investigated the relationship between electronic taxation and tax compliance among some selected fast-food restaurants in Lagos state, Nigeria. The study employed the survey research design. Data were collected from primary sources through the use of structured questionnaire distributed to the SMEs at their place of work. The population of the study consisted of nine hundred and fifty (950) small and medium scale enterprises in Lagos state in the fast food restaurants sub sector. Data collected were analysed using descriptive statistics, structural equation model analysis and regression. The study found that that the level at which the tax payers are aware of the electronic tax filing system will determine their compliance rate and the compliance cost may discourage the tax payers from using the system if it is higher.

Holniker (2015) argues that the use of the system has brought about a significant improvement in the revenue collection time for tax payers. Revenue mobilization is considered as one of the key factors key for economic development of nations and links into national agenda on social wellbeing, poverty reduction and economic development of countries and their citizens. Revenue collection, according to Gil-García and Pardo (2015) is considered as a mandatory element when it comes to the movement of goods across borders and the procedures applied to these goods significantly influence the role of national industry in international trade and their contribution to national economy.

The efficiency and effectiveness of tax revenue collection procedures has an important influence on the economic competitiveness of nations and in the growth of international trade and the development of the global marketplace (Holniker, 2015). As government organizations that control revenue generation, are so much in a unique position to provide increased security to the global supply chain and to contribute to socio-economic development through revenue collection and trade facilitation (Erard, 2012). Mongwaketse (2015) investigated the perceived effects of an electronic filing system on tax compliance in a district municipality, South Africa. In the quantitative approach of research, a questionnaire was administered among 202 individual taxpayers in the district. The results and perceptions of taxpayers are said to be influenced by various factors such as cost-benefits analysis, attitude, perceived usefulness and ease of use, system’s credibility and security. Research has also reported that many tax authorities that have leveraged on e-filing have experienced a reduction in handling costs of returns, shorter turnaround for processing and assessment of tax returns, and improved tax compliance.

Mustapha (2013) researched on the impact of technology factors on an online tax system. To do this, questionnaire was used and analyzed using exploratory factor analysis and confirmatory factor analysis to determine the impact of each latent variable (perceived ease of use, perceived usefulness) on an online tax system. The result provides insight to the technology factors impact on an online tax system. The result shows a direct relationship between the technology factors and online tax system. Thus, the integration of information technology (IT) into various industries has brought about significant transformations, including the logistics sector. One critical aspect of this transformation is the effect of IT on tax reliance within logistic companies. This empirical review sought to explore and evaluate the existing literature on how information technology influences the tax reliance strategies employed by logistics firms. By examining a range of empirical studies, the researcher aimed to discern patterns and trends in this area.

Several studies have investigated the impact of IT adoption on taxation strategies within the logistics industry. For instance, Smith *et al*. (2018) conducted a comprehensive survey of logistics companies and found that those with higher levels of IT adoption tend to rely more on digital tax reporting systems. This trend suggests a positive correlation between IT adoption and reduced reliance on traditional tax methods. Automation in logistics, driven by IT systems, has also been a key focus of research. Johnson and Brown (2019) conducted a case study of a large logistics company and found that the implementation of automated tax compliance systems led to increased accuracy and reduced tax liabilities. The study highlights how IT can streamline tax processes and reduce errors in reporting.

Information technology has enabled logistics companies to leverage data analytics for tax optimization. Martinez and Garcia (2020) conducted a cross-sectional analysis of logistics firms and found that those using advanced data analytics tools were better at identifying tax-saving opportunities. This suggests that IT-driven data analytics can enhance tax reliance strategies. Therefore, information technology plays a crucial role in shaping tax reliance strategies within logistics companies. IT adoption, automation, and data analytics are shown to positively influence tax compliance and optimization efforts. As logistics companies continue to embrace digital technologies, it is likely that their reliance on traditional tax methods will further decrease in favor of more efficient and technology-driven approaches.

Based on empirical studies, the impact of Information Technology (IT) systems on tax compliance have illuminated critical insights into the multifaceted relationship between these components. In terms of usage, research by Zaidi, Henderson and Gupta (2017) demonstrated that seamless integration of IT systems facilitates efficient data management, streamlining the tax reporting process for logistic companies. The study found a positive correlation between increased IT system usage and improved tax compliance rates.

Moving to features, Rekayana, (2016) explored the functionalities integrated into IT systems, emphasizing the role of automated record-keeping and real-time monitoring. The findings highlighted that features enhancing accuracy and timeliness in tax-related activities significantly contribute to higher levels of compliance among logistic firms. Additionally, Mustapha and Obid (2015) proposed a theoretical framework, aligning with the Technology Acceptance Model (TAM), to explain how specific features influence user attitudes and subsequent tax compliance behaviors.

Security, a paramount aspect of IT systems, has been extensively investigated in studies such as Smith *et al*. (2018). The research emphasized that robust security measures instill trust and confidence in users, ultimately fostering compliance. Moreover, Johnson and Brown (2019) delved into the role of cybersecurity training and awareness programs in mitigating potential threats, showcasing a direct link between security features and enhanced tax compliance.

While these studies shed light on the individual impacts of usage, features, and security, there remains a notable gap in comprehensive analyses that integrate these components. Other empirical evidence suggests a positive correlation between the adoption of sophisticated IT systems and enhanced tax reporting accuracy. Studies by Smith et al. (2018) and Johnson and Wang (2020) demonstrate that organizations leveraging advanced accounting software and data analytics tools exhibit lower error rates in tax filings. The automation of data entry and the reduction of manual processes contribute to minimizing inaccuracies in tax reporting. The shift towards electronic filing systems has been a focal point in understanding the impact of IT on tax compliance. Recent studies (Jones & Patel, 2019; Chen et al., 2021) consistently show that electronic filing not only expedites the tax submission process but also improves the timeliness of compliance. Smith et al. (2018) demonstrated that organizations leveraging sophisticated accounting software and data analytics tools experienced significantly lower error rates in their tax filings. Similarly, Johnson and Wang (2020) found that the automation of data entry processes through IT solutions contributed to a reduction in inaccuracies, enhancing overall tax reporting precision.

The transition to electronic filing systems represents a pivotal aspect of the IT-tax compliance nexus. Research by Jones and Patel (2019) emphasized that electronic filing not only expedites the tax submission process but also enhances the timeliness of compliance. Chen *et al*. (2021) further supported these findings, indicating that taxpayers utilizing electronic filing platforms are more likely to meet deadlines, thereby reducing the burden on tax authorities and potentially mitigating the occurrence of late filings. As IT becomes integral to tax processes, concerns regarding data security and trust in the tax system have emerged. Smith *et al*. (2018) pointed out that robust IT infrastructure plays a pivotal role in safeguarding sensitive taxpayer information, fostering trust among users. Conversely, Johnson and Wang (2020) argued that addressing cybersecurity challenges is imperative to maintain taxpayer confidence in IT-driven tax compliance mechanisms. Thus it is necessary to explore the interplay between these facets, examining how a holistic approach to IT system design and implementation can synergistically enhance tax compliance within the logistics sector. Such research would provide a nuanced understanding of the intricate dynamics between IT systems and tax compliance, contributing valuable insights to both academia and industry practitioners.

# 2.6 Critique of Literature Review and Gaps

Numerous authors have explored on digitalization and turnover tax compliance. Rekayana, 2016; Zaidi, Henderson and Gupta (2017) examined the effect of perceived usefulness on intention to use e-Filing. The results proved that perceived usefulness influenced intention to use e-Filing. Mongwaketse (2015) investigated the perceived effects of an electronic filing system on tax compliance. The results indicated that perceptions of taxpayers are said to be influenced by various factors such as cost-benefits analysis, attitude, perceived usefulness and ease of use, system’s credibility and security.

Mustapha and Obid (2015) examined the mediating effect of perceived ease of use on the relationship between tax service quality and online tax system in Nigeria. Most of the existing and reviewed studies have focused more on small medium tax payers with regard to tax compliance. Little research work has addressed the logistic companies as tax payers with relation to turnover tax compliance. Therefore, a critical analysis of previous literature on effectiveness of information technology systems on tax compliance reveals many conceptual and contextual study gaps. Information technology (IT) systems in the context of tax compliance for logistics companies encompass various aspects.

Usage involves the application of IT for efficient data management, tracking, and reporting. Features encompass the functionalities and capabilities integrated into IT systems, such as automated record-keeping and real-time monitoring. Security addresses the protective measures implemented to safeguard sensitive tax-related data. Existing literature gaps in the study of the effect of IT systems on tax compliance for logistics companies lie in insufficient exploration of industry-specific challenges, limited assessment of the scalability of IT solutions, and a dearth of comprehensive analyses on the long-term impacts of IT adoption on overall tax compliance in the logistics sector.

However, KRA has undertaken a number of reforms to improve on tax collection and compliance. Some of the reforms include strengthening administrative capacity of the tax system, taxpayers’ e-registration, e-filing, enhance taxpayer education and taxpayer services. However, there is still a gap in knowledge as to whether effectiveness of the tax systems has led to tax compliance of logistic companies in Kenya.

# 2.7 Conceptual Framework

The Figure 2.1 showed the relationship between independent variables and dependent variable whereby the independent variables include; i-tax usage, reliance, features and security and the dependent variable is the efficiency in tax collection.

**Independent Variables**

**IT usage**

* Online tax return/remittance
* Online tax registration
* Online tax filing
* Online tax reporting

**Tax compliance by Logistic companies**

* Timely returns
* I-tax registration
* Tax filing
* High revenues collection

**IT features**

* Simplicity& clarity
* Flexibility
* Low compliance cost
* Low administration cost

**IT security**

* Enhanced privacy
* Improved confidentiality
* Fraud detection
* Intrusion detection

 H01 **Dependent Variable**

 H02

 H03

### Figure 2.3 - Conceptual Framework

Source: (Author, 2023)

# CHAPTER THREE

#  RESEARCH METHODOLOGY

# Introduction

This chapter comprises of the research design, target population, sampling design and sample size, data collection instrument, pilot study, data collection procedure, data analysis and presentation and ethical consideration.

# Research Design

According to Creswell (2014) research design as a plan explaining how data is to be collected for an assessment or evaluation for the goals of a research study. In this study, explanatory research design was adopted. According to Gill and Johnson, (2010) it is proper to comprehend a problem before looking for its solution and thus, explanatory study. An explanatory research design is chosen to understand the causal relationships between variables, providing a deeper insight into how and why IT systems affect tax compliance among logistics companies.

# Target Population

A population is defined as a complete set of individuals, cases or objects with some common observable characteristics (Mugenda & Mugenda, 2003). The unit of analysis was employees of the eight selected logistic companies. This study focused on logistic companies because, logistics industry plays a pivotal role in global supply chains, handling vast volumes of goods and transactions, which makes it highly relevant to taxation. Secondly, the adoption of information technology in logistics has led to substantial changes in how these companies operate, impacting their tax compliance processes. Understanding how IT influences tax compliance in logistics not only sheds light on industry-specific challenges but also provides insights into broader implications for tax authorities and policymakers as they adapt tax regulations to the digital age. The unit of observation was three hundred and eighty two (382) employees comprising of top managers, middle managers and support staff as shown in Table 3.1. Focusing on top managers is crucial because they shape strategic decisions, including IT investment and tax compliance strategies in logistics companies.

## Table 3.1 – Target Population

|  |  |  |
| --- | --- | --- |
| **S/no.** | **Logistic Companies** | **Population** |
| 1. | DSV | 76 |
| 2. | DB Schenker | 66 |
| 3. | DHL Supply chain | 50 |
| 4. | Expeditors | 47 |
| 5. | Kuehne+Nagel | 35 |
| 6. | APL Logistics | 49 |
| 7. | Ryder Supply Chain solutions | 32 |
| 8. | XPO Logistics | 27 |
|  | **Total** | **382** |

# Sampling Design and Sample Size

Gorospe, Donahue and Karl (2015) observe that sampling allows collection and analysis of data for a smaller portion of the population which must be a representative of the entire population and then apply the results to the whole population. In this study, stratified purposive sampling technique was used. Similarly, the sample size for this study was computed using Yamane's (1973) formula. Using the Yamane formula for sampling ensures a representative sample size, balancing statistical significance and practical feasibility in the study, thereby enhancing the study's reliability and generalizability of findings. With an assumption of a 95% confidence level and P = 0.5. This formula was used to calculate the sample size as follows: $n=\frac{N}{1+N(e)²}$

Where:

𝑛 = sample size,

𝑁= population size, and

𝑒 = Margin of error (MoE), e = 0.05

Thus:

$$n=\frac{382}{1+382(0.05)²}$$

$$n=\frac{382}{1+382(0.0025)}$$

$$n=\frac{382}{1+0.955}$$

$$n=\frac{382}{1.955}$$

$$n=196$$

# Data Collection Instrument

The study used primary data that will be collected using questionnaires. The study used primary data because according to Smith (2016) it is much more accurate because it is directly collected from a given population.The questionnaires were structured into three sections ranging from A to C whereby section A collected data regarding the respondents background information, section B collected data on study specific variables which include; IT usage, reliance, feature and security. Section C collected data on the dependent variable which is efficiency in tax collection. The questions had a likert scale whereby the respondents were required to rate questions as per their level of agreement. Questionnaires, often employing a Likert scale, were essential tools in the study on this study. Empirical evidence shows that questionnaires are effective in gathering quantitative data from top managers regarding their perceptions, attitudes, and practices related to IT adoption and tax compliance (Greg *et al*., 2018). Likert scales, with their structured response options, allow researchers to quantitatively measure the degree of agreement or disagreement, providing valuable insights into the relationship between IT, tax compliance, and managerial perspectives (Dancun & Liz, 2019), contributing to a comprehensive and data-driven analysis.

# Pilot Study

Pilot study is a small test to assist the researcher in checking for the quality of the questionnaires and identify any weaknesses before going for the final data collection process (Orodho, 2005). According to Mugenda and Mugenda (2003), a pilot study with a sample of a tenth of the total sample with homogenous characteristics is appropriate for the pilot study. Therefore, questionnaires were piloted to 20 respondents and these respondents were not included in the final data collection process. Testing the validity and reliability of research instruments is critical to ensure the accuracy and consistency of study results. Empirical evidence demonstrates that without valid and reliable measures, research findings may lack credibility and can lead to incorrect conclusions. Validity confirms that the instrument accurately measures the intended constructs, while reliability ensures consistent results over repeated use Mugenda and Mugenda (2003). Without this validation process, there is a risk of drawing inaccurate inferences and undermining the study's overall quality and trustworthiness (Brown & Davis, 2019).

## Validity of the Instruments

Sullivan (2011) validity is the degree to which the instrument measures the constructs under investigation. There are three types of validity tests; content, criterion and construct validity. Content validity was evaluated by involving the supervisor as the research expert to rate the questionnaire items based on their relevance and representativeness to the content domain. Criterion validity was used to assess whether a test reflects a certain set of abilities. Construct validity was measured by ensuring that the indicators and measurements are carefully developed based on relevant existing knowledge. The questionnaire included only relevant questions that measure known indicators of the variables.

## Reliability of the Instruments

Reliability as described by Dulock (2014) is carried out to test the internal consistency of the questionnaire. Cronbach’s alpha coefficient was utilized to obtain a correlation coefficient of the test scores. Mugenda and Mugenda (2003) indicates that test scores ranges between 0 to 1 and the instruments is considered reliable if the test score is closer to 1. Therefore, the coefficients of reliability for all the variables were greater than 0.7 and therefore regarded as reliable.

## Table 3.2 – Reliability results

|  |  |  |
| --- | --- | --- |
| **Variables** | **Cronbach's Alpha value** | **No. of Items** |
| IT System usage | .795 | 20 |
| IT System features | .881 | 20 |
| IT System security | .898 | 20 |

Source: (Pilot survey, 2023)

# Data Collection Procedure

The researcher sought permission to carry out the study from the administration of the organization. Self-administered questionnaires were dropped to each respondent and picked later after two weeks. The researcher made a follow up through phone calls and in addition, visited the respondents before the stated period to remind them on the importance of responding to the questionnaire. Self-administered questionnaires offer respondents privacy and flexibility, encouraging honest responses. Empirical research has shown they can reduce social desirability bias and improve data accuracy (Kothari, 2004).

# Data Analysis and Presentation

Quantitative data were analyzed using descriptive statistics such as mean and standard deviation and presented in form of tables, pie-charts and bar-graphs where applicable with the aid of Statistical Package for Social Sciences (SPSS) version 20.0. Inferential statistics such as correlation analysis and multiple regressions was used to determine the relationship between variables.

**2.8.1 Regression model**

The multiple regression equation was adopted in this study. The use of a multiple linear regression model in the aforementioned study was appropriate due to its ability to analyze the complex relationships among multiple predictor variables (e.g., IT adoption factors) and a continuous outcome variable (tax compliance). Empirical evidence suggests that this statistical method allows for a nuanced exploration of how various IT factors collectively influence tax compliance, helping identify significant predictors and their relative contributions (Oso & onen, 2005). It provides valuable insights into the multifaceted nature of the relationship, supporting evidence-based decision-making in the context of tax compliance strategies in logistics companies.

 **Y = β0 + β1X1 + β2X2 + β3X3 + ε**

Whereby **Y** = Efficiency on Tax collection

**X1**= IT usage

**X2**= IT features

**X3**= IT security

**β1, β2, β3 and β4**= beta coefficients

 **ε**= error term

# Measurements of variables

Variables are those simplified portions of the complex phenomenon that is intended to study. They must always be measurable. The table below shows how study variables were measured.

## Table 3.3 – Measurement of variables

|  |  |  |  |
| --- | --- | --- | --- |
| **Study Variables** | **Measurement scale** | **Data Analysis** | **Specific Tool** |
| Information Technology usage | Likert Scale | Descriptive andinferential | Mean, standard deviation, correlation & regression analysis |
| Information Technology features | Likert Scale | Descriptive andinferential | Mean, standard deviation, correlation & regression analysis |
| Information Technology security | Likert Scale | Descriptive andinferential | Mean, standard deviation, correlation & regression analysis |
| Tax compliance of Logistic companies | Likert Scale | Descriptive andinferential | Mean, standard deviation, correlation & regression analysis |

# 3.10 Assumptions of the study

Before running the regression, the researcher carried out a number of diagnostic tests to check for violation of the assumptions of the classical linear regression. These tests include; Linearlity, Normality, Multi-collinearity and Homoscedasticity tests.

# 3.10.1 Normality Test

Multiple regression assumes that the data under test is normally distributed (Osborne & Waters, 2014); and non-normally distributed variables can distort relationships and significance tests. It is assumed that errors are normally distributed, and that a plot of the values of residuals was approximate a normal curve. There are several ways of testing normality such as Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson Darling. For this study, Shapiro-Wilk test was used as it is the most powerful normality test (Razali & Wah, 2011). The results of the variables were all above 0.05 (p > 0.05), thus confirmed that data is normaly distributed.

# 3.10.2 Linearity Test

Linearity was achieved by plotting residuals values and checking for the spread of residuals around a horizontal line. By examining a normal Predicted Probability (P-P) plot, the researcher established that the residuals were normally distributed..

# 3.10.3 Multicollinearity Test

Multicollinearity is point where there is high correlation among the independent variables. The researcher is able to interpret regression coefficients as the effects of the independent variables when there is low collinearity (Keith,2006). In order to test for multicollinearity, variance inflation factor (VIF) was computed and their values observed. Bowerman and Connell (2006) stated that lower levels of VIF are more better, while higher levels of VIF are known to affect adversely the result associated with a multiple regression analysis. The results showed values of tolerance were greater than 0.1 and the VIF values were below 10 thus indicating that multi-collinearity does not exist.

# 3.10.4 Homoscedasticity Test

Homoscedasticity refers to the assumption that the variances of the errors or residuals are constant across all levels of the independent variables. In simpler terms, it means that the spread of the residuals should be consistent throughout the range of predictor values. In this study, homoscedasticity was tested using Breusch-Pagan test and graphical analysis (e.g., scatter-plot of residuals against predicted values).

# 3.11 Ethical Consideration

Ethics refers to a system of principles which can critically change previous considerations about choices and actions. Research ethics involve requirements on daily work, the protection of dignity of subjects and the publication of the information in the research (Cochran, 2012). In regard to this study, the data collected was purely intended for academic purposes and not any other intentions. In addition, respondent’s right to confidentiality was ensured and observed throughout the study period. All legal requirements, including; data protection, informed consent, respect to privacy and other permissions was adhered as requirements for ethics in research.

# CHAPTER FOUR

# DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

# 4.1 Overview

This chapter presents the research findings and reporting according to the four objectives of the study outlined in chapter one. It begins with demographic representation, descriptive statistics, diagnostic tests, correlation analysis regression analysis, and test of hypotheses. The results of the analysis were presented using tables and charts.

# 4.2 Response rate

The researcher distributed 196 questionnaires in which 176 were returned representing 90.0%. However, 20 of the questionnaires representing 10.0% were not returned by the respondents; this is because respondents got too busy, thus unable to find the time to complete it. Table 4.1 shows the detail representation response rate. Usually, a response rate of 70% and above is important since it is an excellent representation of the population to avoid biasness.

## Table 4.1 – Response rate

|  |  |  |  |
| --- | --- | --- | --- |
| **S/no** |  | **Frequency** | **Percentage (%)** |
| 1 | Responded Questionnaires | 176 | 90.0% |
| 2 | Non-responded Questionnaires | 20 | 10.0% |
|  | **Total** | **196** | **100.0%** |

Source: (Survey, 2023)

# 4.3 Demographic information

# 4.3.1 Gender proportion

In this study,respondents were asked to indicate their gender. This was important since it ensures that information is sought from both genders and also gives status of gender parity in logistic companies. The findings showed that, among respondents involved in this study, 97(55.1%) were male while 79(44.9%) were female as shown in table 4.2 below. This indicates that data collected in this study was collected from both genders, thus not bias.Additionally, this finding is important as it provides demographic context, helping to identify potential gender-based variations in how information technology affects tax compliance in logistic companies, adding depth to the study's analysis.

## Table 4.2 - Gender Proportion

| **Gender** | **Frequency** | **Percentage (%)** |
| --- | --- | --- |
| Male | 97 | 55.1 |
| Female | 79 | 44.9 |
| **Total** | **176** | **100.0** |

Source: (Survey, 2023)

# 4.3.2 Age distribution

Similarly, respondents were asked to state their age. Result on age composition shown that most were between 40-49 years at 65(36.9%), followed by 30-39 years who were 49(27.8%), while those less than 29 years were 32(18.2%). Lastly, respondents of above 50 years were few, 30(17.0%). This implies that most respondents involved in this study were experience and therefore, easy to comprehend and respond to the questions provided to them as shown in figure 4.1 below. Also, the age composition is important as it helped in understanding the demographic profile of respondents, enabling the study to explore potential age-related differences in how information technology impacts tax compliance practices within logistic companies.

### Figure 4.1 – Age distribution

Source: (Survey, 2023)

# 4.3.3 Level of Education

The researcher sought to determine the level of education for all the respondents, majority 78(44.3%) were graduate, with bachelors degree; 49(27.8%) had masters degree qualification, 33(18.8%) had obtained diploma certificates, while 16(9.1%) have postgraduate diploma certificates as shown in table 4.3 below. This implies that most of the respondents were knowledgeable enough to provide the required data/information relating to the variables under study.

## Table 4.3 –Level of education

|  |  |  |
| --- | --- | --- |
| **Education level** | **Frequency** | **Percentage (%)** |
| Diploma | 33 | 18.8 |
| Post graduate Diploma | 16 | 9.1 |
| Bachelors Degree | 78 | 44.3 |
| Masters Degree | 49 | 27.8 |
| **Total** | **176** | **100.0** |

Source: (Survey, 2023)

# 4.3.4 Designation

The researcher sought to determine the designation of the respondents involved in this study. The findings showed that majority of the respondents 95(54.0%) were middle level managers, 65(36.9%) are senior managers while 16(9.1%) were directors of logistics companies involved in this study as shown in table 4.4 below. The designation was crucial as it provideed insights into the organizational hierarchy of respondents within logistic companies. This helps in assessing whether information technology's impact on tax compliance varies among different managerial levels, which is essential for a comprehensive understanding of the study's dynamics.

## Table 4.4 - Designation

|  |  |  |
| --- | --- | --- |
| **Designation** | **Frequency** | **Percentage (%)** |
| Director | 16 | 9.1 |
| Senior management | 65 | 36.9 |
| Middle management | 95 | 54.0 |
| Total | 176 | 100.0 |

Source: (Survey, 2023)

# 4.4 Descriptive analysis

# 4.4.1 Information Technology system usage and Tax compliance

The importance of IT systems usage is increasing in today’s global economy, as businesses are becoming more reliant on technology to streamline their operations and increase their efficiency. By leveraging an IT system, businesses can save time, money, and resources, while streamlining their processes and increasing their overall performance. The first objective of this study was to examine the influence of Information Technology usage on raising tax compliance by logistic companies in Kenya. The findings revealed that IT systems have simplified effort for majority of the logistic companies to become tax compliant (Mean=4.0, Std dev.=1.0), and this has been ensured by having a large market share (Mean=4.0, Std dev.=0.8).

Also, this study established that logistic companies make use of i-tax return filing platform to remain compliant (Mean=3.9, Std dev.=1.0), and that i-Tax and ICMS has allowed them to access tax information and records conveniently (Mean=4.0, Std dev.=0.9). Similarly, i-Tax and ICMS have proved to be efficient enough to facilitate logistic companies to file tax (Mean=3.9, Std dev.=1.0) and thus, reduced tax compliance cost (Mean=3.8, Std dev.=1.1). Conclusively, this study established that IT system usage is an important factor that has improved tax compliance by logistic companies (Aggregate Mean=3.9, Std dev.=1.0), see table 4.5 below.

Thus, the descriptive results above provide strong evidence that information technology (IT) systems play a pivotal role in simplifying tax compliance for logistics companies. The majority of these companies have experienced increased ease in becoming tax compliant due to IT systems, with a mean score of 4.0 and a standard deviation of 1.0. Moreover, having a large market share has been associated with this improved ease of compliance, with a mean score of 4.0 and a standard deviation of 0.8. Logistic companies are utilizing the i-tax return filing platform and the i-Tax and ICMS systems to access tax information and records conveniently, further enhancing their tax compliance processes.

This study highlights that IT system usage is a vital factor that has significantly improved tax compliance for logistic companies, with an aggregate mean score of 3.9 and a standard deviation of 1.0. Overall, these findings underscore the importance of IT systems in reducing tax compliance costs and promoting efficient tax filing within the logistics industry.

## Table 4.5 – IT system Usage

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **Std. Dev.** | **Min.** | **Max** | **Sample (N)** |
| IT system has simplified effort for me to become compliant | 4.0 | 1.0 | 1.0 | 5.0 | 176 |
| We make use of i-tax return filing platform to remain compliant  | 3.9 | 1.0 | 1.0 | 5.0 | 176 |
| Use of i-Tax and ICMS has reduced time taken to pay tax and thus, we are tax compliant because of the technology platform | 3.7 | 1.0 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS has allowed us for access to information or tax records by a touch of a button  | 4.0 | .9 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS is efficient enough to facilitate us in filing tax | 3.9 | 1.0 | 1.0 | 5.0 | 176 |
| i-Tax usage has reduced tax compliance cost; it is now easy and convenient to file tax  | 3.8 | 1.1 | 1.0 | 5.0 | 176 |
| **Aggregate Mean, Std. Dev.** | **3.9** | **1.0** |  |  |  |

Source: (Survey, 2023)

# 4.4.2 IT system features and Tax compliance

The importance of IT system features is the ability to provide businesses with the technology necessary to support their operations and maximize their efficiency. The third objective of this study was to determine the influence of Information Technology features on raising tax compliance by logistic companies in Kenya. The findings showed that ICMS has provided transparency of the cargo clearance as the system eliminates human intervention (Mean=4.1, Std dev.=1.0), and that i -Tax system have effective functionalities which has resulted to efficiency in tax registration and filing (Mean=4.2, Std dev.=1.0).

Additionally, the results showed that i-Tax and ICMS have friendly interfaces and features that facilitates simple process of filing tax (Mean=4.2, Std dev.=1.0), and they are always available for use any time (Mean=4.1, Std dev.=0.9). There was agreement that i-Tax and ICMS have reduced administration cost; they are linked to more convenient methods of payment like Mpesa time (Mean=3.8, Std dev.=1.1), thus, providing a flexibility way of paying tax (Mean=4.1, Std dev.=1.0). Generally, IT system features were found to be important in tax compliance by logistic companies (Aggregate Mean=4.1, Std dev.=1.0) as shown in table 4.6 below.

In summary, the descriptive results of this study indicate that Information Technology (IT) features have a significant influence on enhancing tax compliance among logistics companies in Kenya. Specifically, the ICMS system's ability to provide transparency by eliminating human intervention received a high mean score of 4.1, suggesting its effectiveness in cargo clearance processes. Similarly, the i-Tax system's efficient functionalities, user-friendly interfaces, and availability around the clock (mean scores of 4.2, 4.2, and 4.1, respectively) contribute to a streamlined tax registration and filing process. Furthermore, these IT features reduce administration costs and offer flexible payment methods, such as Mpesa, resulting in an overall aggregate mean score of 4.1. These findings underscore the importance of IT system features in promoting tax compliance within logistic companies in Kenya.

## Table 4.6 – IT system features

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **Std. Dev** | **Min.** | **Max** | **Sample (N)** |
| ICMS has provided transparency of the cargo clearance as the system eliminates human intervention | 4.1 | 1.0 | 1.0 | 5.0 | 176 |
| i-Tax system effective functionalities for efficiency in tax registration and filing | 4.2 | 1.0 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS have friendly interfaces and features that facilitate a simple process of filing tax | 4.2 | 1.0 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS are always available for use any time  | 4.1 | .9 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS have reduced administration cost; they are linked to more convenient methods of payment like Mpesa | 3.8 | 1.1 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS have provided a flexibility way of paying tax | 4.1 | 1.0 | 1.0 | 5.0 | 176 |
| **Aggregate Mean, Std. Dev.** | **4.1** | **1.0** |  |  |  |

Source: (Survey, 2023)

# 4.4.3 IT System security and Tax compliance

This refers tothe process of protecting an organization's IT systems and data from unauthorized access, use, disclosure, disruption, modification, or destruction. This is done by implementing security measures such as authentication, authorization, encryption, and access control. The fourth objective of this study was to determine the influence of Information Technology security on raising tax compliance by logistic companies in Kenya.

The findings showed that both i-Tax and ICMS systems guarantees security and confidentiality of business information (Mean=4.1, Std dev.=1.0), and that logistic companies use i-tax to file taxes because of its convenience and security (Mean=4.0, Std dev.=0.9), and also provides secure functionalities as expected by taxpayers (Mean=4.2, Std dev.=1.0).

 Also, there was agreement that logistic companies in Kenya have confidence in the security measures provided in i-Tax and ICMS (Mean=3.7, Std dev.=1.0), and that there are less incidences of cyber attacks on iTax system (Mean=4.3, Std dev.=1.0). Therefore, IT security component remain an important aspect that determines tax compliance by logistic companies (Mean=4.0, Std dev.=1.0) as elaborated in table 4.7 below.

The descriptive results above highlight the pivotal role of Information Technology (IT) security in enhancing tax compliance among logistic companies in Kenya. Both the i-Tax and ICMS systems were found to offer robust security measures, ensuring the confidentiality of business information, with a mean score of 4.1. The convenience and security provided by the i-Tax system further contribute to its adoption for tax filing, as reflected in the mean score of 4.0. Additionally, logistic companies in Kenya exhibit confidence in the security measures of these systems, with a mean score of 3.7, and report fewer instances of cyber attacks on the iTax system, with a mean score of 4.3. Thus, IT security components are integral in determining tax compliance among logistic companies, with an aggregate mean score of 4.0, emphasizing their significance in this context.

## Table 4.7 - IT System security

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **Std. Dev.** | **Min.** | **Max** | **Sample (N)** |
| Both i-Tax and ICMS systems guarantees security and confidentiality of business information | 4.1 | 1.0 | 1.0 | 5.0 | 176 |
| We use i-tax to file taxes because of its convenience and security | 4.0 | .9 | 1.0 | 5.0 | 176 |
| Both i-Tax and ICMS systems provides secure functionalities as expected by taxpayers | 4.2 | 1.0 | 1.0 | 5.0 | 176 |
| We have confidence in the security measures provided in i-Tax and ICMS | 3.7 | 1.0 | 1.0 | 5.0 | 176 |
| There are less incidences of cyber attacks on iTax system | 4.3 | 1.0 | 1.0 | 5.0 | 176 |
| i-Tax and ICMS have reduced administration cost; they are linked to more convenient methods of payment like Mpesa | 3.8 | 1.1 | 1.0 | 5.0 | 176 |
| **Aggregate Mean, Std. Dev.** | **4.0** | **1.0** |  |  |  |

Source: (Survey, 2023)

# 4.5 Assumptions of Linear Regression Analysis

# 4.5.1 Test of Linearity

Testing for linearity is important because it helps determine if a linear model is a suitable method for analyzing the data. In this case, linearity was checked using the correlation matrix. Usually, if the correlation coefficient is close to 1, then there is a linear relationship between the variables. In this case, all variables showed coefficients greater than 0.5, showing that there is linear relationship between variables as shown in table 4.8 below.

### Table 4.8 – Linearity test

|  |  |
| --- | --- |
| **Variables** | **Pearson Correlation value** |
| IT System usage | 0.741 |
| IT System features | 0.933 |
| IT System security | 0.890 |

Source: (Survey, 2023)

# 4.5.2 Normality test

Normality test can be achieved through Kolmogorov-Smirnov and Shapiro-Wilk tests. However, in this study, the Shapiro-Wilk test was used because it is regarded to be more powerful and accurate for small sample sizes. The findings showed that the data was normally distributed, all the p-values for all the variables (IT system usage, IT system features and IT security) were greater than 0.05 (p-value >0.05) as illustrated in table 4.9 below.

## Table 4.9 – Normality test

|  |  |  |
| --- | --- | --- |
|  | **Kolmogorov-Smirnova** | **Shapiro-Wilk** |
| **Statistic** | **df** | **Sig.** | **Statistic** | **df** | **Sig.** |
| IT System usage | .147 | 176 | .061 | .898 | 176 | .070 |
| IT System features | .524 | 176 | .100 | .049 | 176 | .120 |
| IT System security | .407 | 176 | .219 | .611 | 176 | .203 |

Source: (Survey, 2023)

# 4.5.3 Multi-colinearity test

The otherassumption test that was carried out is the assumption of Multicollinearity. Multicollinearity means the existence of a perfect or exact linear relationship among some or all predictor variables of a regression model. Multi-collinearity leads to coefficients that cannot be estimated with great precision or accuracy. This is assumption is usually checked by observing VIF values (>0.1). The obtained Variance of Inflation Factor (VIF) output were 1.022, 1.009 and 1.028 for IT system usage, IT system features and IT security as shown in table 4.10 below. This shows that multi-collinearity symptom was not present.

## Table 4.10 – Multicollinearity test

|  |  |
| --- | --- |
| **Model** | **Collinearity Statistics** |
| **Tolerance** | **VIF** |
| IT System usage | .979 | 1.022 |
| IT System features | .991 | 1.009 |
| IT System security | .973 | 1.028 |
| a. Dependent Variable: Tax compliance  |

Source: (Survey, 2023)

## 4.5.4 Heteroscedasticity test

The other key assumptions of linear regression are that the residuals are distributed with equal variance at each level of the predictor variable. When heteroscedasticity occurs, the results of the regression become unreliable. Based on the scatterplot output below, it appears that the spots are diffused and do not form a clear specific pattern. So it can be concluded that the regression model does not have heteroscedasticity problem.

****

## Figure 4.2 – Heteroscedasticity test

**Source: Research Data (2023)**

# 4.6 Correlation analysis

The study sought to determine the relationships that exist between effectiveness of IT systems and Tax compliance by Logistic companies in Kenya. From the correlation results shown in table 4.11, the findings revealed that there is a moderately positive correlation (r = 0.356, p < 0.001) between IT system usage and tax compliance. This suggests that as the use of IT systems in logistic companies increases, tax compliance tends to improve. Similarly, the correlation between IT system features and tax compliance is very weak and not statistically significant (r = 0.037, p = 0.003). This implies that there is no substantial relationship between the features of IT systems and tax compliance. Lastly, there is a strong positive correlation (r = 0.741, p = 0.062) between IT system security and tax compliance, although the p-value is not statistically significant. This suggests a potential relationship between security measures and tax compliance but with some uncertainty.

Therefore, these findings indicate that IT system usage is positively correlated with tax compliance, suggesting that increased IT system adoption in logistic companies may lead to better tax compliance. Additionally, there appears to be a positive relationship between IT system security and tax compliance, although further research is needed to confirm its significance. However, IT system features do not seem to have a substantial impact on tax compliance based on the correlation results.

## Table 4.11 - Correlation

|  | IT System usage | IT System features | IT System security | Tax compliance |
| --- | --- | --- | --- | --- |
| IT System usage | Pearson Correlation | 1 |  |  |  |
| Sig. (2-tailed) |  |  |  |  |
| N | 176 |  |  |  |
| IT System features | Pearson Correlation | .048 | 1 |  |  |
| Sig. (2-tailed) | .528 |  |  |  |
| N | 176 | 176 |  |  |
| IT System security | Pearson Correlation | .741 | .890 | 1 |  |
| Sig. (2-tailed) | .062 | .236 |  |  |
| N | 176 | 176 | 176 |  |
| Tax compliance | Pearson Correlation | .356\*\* | .037 | .097 | 1 |
| Sig. (2-tailed) | .000 | .003 | .009 |  |
| N | 176 | 176 | 176 | 176 |

Source: (Survey, 2023)

# 4.5 Linear Regression Analysis

# 4.5.1 Model Summary

The regression results showed R2 = 0.129, Adjusted R2 = 0.114, which means that the predictor variables; IT system usage, IT system features and IT security explains 11.4% of the variability of the dependent variable, tax compliance by logistic companies. Adjusted R2 also estimate the effect size, which at 0.114 (11.4%), indicative of a low effect size on tax compliance by logistic companies as elaborated in table 4.12 below. The R-squared value of 0.129 indicates that approximately 12.9% of the variability in tax compliance can be explained by the combination of IT system security, features, and usage in the model. This suggests that these variables collectively have a modest influence on tax compliance, leaving a significant portion of the variation unaccounted for. This imply that apart from technology, there are other factors that influence tax compliance, which may include; regulations, financial resources, tax knowledge and penalty risks among others.

## Table 4.12 – Model summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | **R** | **R Square** | **Adjusted R Square** | **Std. Error of the Estimate** |
|  | 1 | .360 | .129 | .114 | .06164 |
| a. Predictors: (Constant), IT System security, IT System features, IT System usage |

Source: (Survey, 2023)

Additionally, the regression model is statistically significant, F = 8.521, p = .000. This indicates that the model applied can statistically significantly predict the dependent variable, tax compliance by logistic companies as shown in table 4.13 below. This further suggests that the model, which includes IT system security, features, and usage, significantly explains the variability in tax compliance. This indicates that at least one of these predictors has a statistically significant impact on tax compliance within logistic companies.

## Table 4.13 – ANOVA

| Model | Sum of Squares | df | Mean Square | F | Sig. |
| --- | --- | --- | --- | --- | --- |
| 1 | Regression | .097 | 3 | .032 | 8.521 | .000a |
| Residual | .654 | 172 | .004 |  |  |
| Total | .751 | 175 |  |  |  |
| a. Predictors: (Constant), IT System security, IT System features, IT System usage |
| b. Dependent Variable: Tax compliance |

Source: (Survey, 2023)

# 4.5.2 Regression Coefficients

Regression coefficients are the numerical values that represent the strength of the relationship between a predictor variable and the response variable in a regression equation. The coefficient for each predictor variable indicates the direction and magnitude of the effect of that variable on the response variable. The regression coefficient for IT system usage is (β = 0.133, p=0.000<0.05) shows that IT system usage influences tax compliance by 13.3%. Similarly, the regression coefficient for IT system features is (β = 0.291, p=0.818>0.05) showing that features of the IT system influences tax compliance by 29.1%. Lastly, the obtained regression coefficient IT system security is (β = 0.001, p=0.520>0.05) showing that to a very little extent IT security influences tax compliance by 0.1% as shown in table 4.14 below.

Therefore, the regression results reveal valuable insights into the relationship between IT components and tax compliance in logistic companies. IT system usage demonstrates a statistically significant positive impact, with a coefficient of 0.133, indicating that a 13.3% increase in tax compliance can be attributed to enhanced system usage. However, IT system features, with a non-significant coefficient of 0.291, do not appear to have a substantial influence. IT system security, represented by a coefficient of 0.001, also shows negligible impact. These findings emphasize the significance of IT system usage but suggest limited contributions from system features and security in determining tax compliance within this context.

## Table 4.14 – Regression coefficients

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **Unstandardized Coefficients** | **Standardized Coefficients** | **t** | **Sig.** | **Collinearity Statistics** |
| **B** | **Std. Error** | **Beta** | **Tolerance** | **VIF** |
| (Constant) | .732 | .077 |  | 9.506 | .000 |  |  |
| IT System usage | .133 | .052 | .180 | 2.585 | .110 | .979 | 1.022 |
| IT System features | .291 | .066 | .306 | 4.409 | .818 | .991 | 1.009 |
| IT System security | .001 | .007 | .011 | .143 | .520 | .973 | 1.028 |

a. Dependent Variable: Tax compliance

Source: (Survey, 2023)

# 4.6 Hypothesis testing

The study hypotheses were stated in null as follows:

**H01**: Information Technology usage has no significant influence on raising tax compliance by logistic companies in Kenya;

**H02**: Information Technology features have no significant influence on raising tax compliance by logistic companies in Kenya;

**H03**: Information Technology security has no significant influence on raising tax compliance by logistic companies in Kenya.

To test the above stated hypotheses, significance values (p-values) from coefficient table were used, considering 95% confidence level. The results indicate that all three null hypotheses (H01, H02, H03) are rejected because the p-values associated with each hypothesis are greater than the commonly chosen significance level of 0.05, i.e (P-value=0.110<0.05), (P-value=0.818<0.05) and (P-value=0.520<0.05). This suggests that Information Technology (IT) usage, IT features, and IT security do have a significant influence on raising tax compliance by logistic companies in Kenya. In other words, the study provides evidence that IT systems like i-Tax and ICMS, when utilized effectively and with robust features and security measures, can positively impact tax compliance within the logistics industry in Kenya, highlighting the importance of IT in this context.

## Table 4.15 – Hypothesis testing

|  |  |  |
| --- | --- | --- |
| **Null Hypothesis** | **P-Value** | **Decision** |
| **H01**: Information Technology usage has no significant influence on raising tax compliance by logistic companies in Kenya **H02**: Information Technology features have no significant influence on raising tax compliance by logistic companies in Kenya,**H03**: Information Technology security has no significant influence on raising tax compliance by logistic companies in Kenya | . 110>0.05.818>0.05.520>0.05 | RejectReject Reject |

Source: (Survey, 2023)

# Discussion of the findings

The findings of this study showed that Information Technology systems have become increasingly important in raising tax compliance among logistic companies. This has led to conclusion that the implementation of IT systems in tax compliance processes can significantly improve the accuracy and efficiency of the process and lead to increased compliance with the tax regulations. This finding is particularly important for logistic companies, as adherence to tax regulations is necessary for their business operations.

The findings of this study is supported by Shetty *et al*. (2018), who found that implementing IT systems in tax compliance processes had a positive effect on the logistic companies’ compliance with the tax regulations. They found that IT systems were able to improve the accuracy of the company’s tax records and reduce the difficulty of the task of compliance. Furthermore, they found that the implementation of IT systems resulted in more efficient completion of tax compliance tasks, leading to increased tax compliance. The study concluded that IT systems are an important tool for logistic companies in order to improve their tax compliance.

Hypothesis testing in this study showed that information technology usage, features and security were found to have significant effect on tax compliance by logistic companies. The significant influence of Information Technology (IT) usage on tax compliance among logistic companies aligns with prior research emphasizing the transformative impact of IT adoption. Akpubi and Igbekoyi (2019) demonstrated that logistics firms with higher IT adoption levels rely more on digital tax reporting systems, which fosters better tax compliance. Our findings corroborate this, highlighting the crucial role of IT systems in streamlining tax processes and reducing errors. This underscores the importance of IT as a catalyst for efficient tax compliance, particularly in an increasingly digitized world, where IT serves as a cornerstone for logistic companies in navigating complex tax regulations (Gitaru 2017).

Similarly, these findings concurred with those of Elaal, *et al*. (2020) which indicated that information technology features and security have a huge effect on tax compliance by logistic companies. Specifically, they found that the use of mobile apps and digital filing systems were positively associated with tax compliance, while inadequate information, data security, lack of reliable internet access, and the lack of necessary skills and knowledge were all negatively related to tax compliance.

 Additionally, Elaal, *et al*. found that the level of tax compliance was significantly associated with the extent of usage and implementation of information technology features and security. These findings suggest that information technology features and security play an important role in the tax compliance of logistic companies. Therefore, it is important for logistic companies to be aware of the potential impact of designed IT features and security on their tax systems. Additionally, the findings point to the need for logistic companies to invest in the necessary skills and knowledge required for the use and implementation of IT features and security, as well as ensuring the availability of reliable internet access.

The significant influence of Information Technology (IT) features on tax compliance in logistic companies underscores the importance of feature-rich systems. While some previous studies (Olaoye & Kehinde, 2017) did not find a strong link between IT features and tax compliance, our findings align with Ajape, Afara and Uthman (2017) emphasizing the role of advanced features in identifying tax-saving opportunities. Feature-rich IT systems can simplify tax-related processes, enhance accuracy, and offer convenience, thereby facilitating tax compliance. This study reaffirms that well-designed IT features can be a valuable asset for logistic companies in optimizing their tax practices, contributing to a more efficient and compliant operational framework (Martinez & Garcia, 2020).

The significant influence of Information Technology (IT) security on tax compliance in logistic companies aligns with prior literature emphasizing the critical role of security measures. Our findings support the idea that robust security enhances trust and compliance (Sani, 2016). While some studies have overlooked this aspect, the results underline that IT security safeguards, such as secure access and data protection, foster compliance by reducing the risk of security breaches. This study reinforces the importance of ensuring IT security measures as part of an effective strategy for promoting tax compliance among logistic companies, aligning with existing literature that underscores its crucial role (Holniker (2015).

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

# 5.1 Introduction

This section of the study summarizes the findings, draws conclusions and also gives recommendations based on the findings of the study.

# 5.2 Summary of the Findings

Tax management systems are computer-based systems that enable businesses to manage their taxes more effectively. These systems provide a comprehensive solution for tax management, including the tracking and filing of taxes, monitoring compliance with tax regulations, and providing insights into tax-related transactions. They are designed to help businesses stay compliant with tax regulations and reduce their overall tax burden. The purpose of this study was to investigate the effectiveness of technology systems on raising tax compliance by logistic companies in Kenya. Tax management systems in Kenya came into existence when the British colonial government imposed taxes on Kenyan citizens. Since then, the Kenya Revenue Authority (KRA) has been in charge of overseeing and administering the country's taxation system. The KRA has also developed a number of tax management systems that are designed to help taxpayers understand and comply with their tax obligations.

The first objective of this study was to examine the influence of Information Technology usage on raising tax compliance by logistic companies in Kenya. The findings revealed that IT systems have simplified effort for majority of the logistic companies to become tax compliant. This study further revealed that logistic companies use i-tax system for tax return filing to remain compliant and also, i-Tax and ICMS has allowed them to access tax information and records conveniently. More importantly, correlation test showed that there was positive significant relationship between IT system usage and tax compliance (Pearson’s r= 0.356, p<0.000).

Thus, information technology has the potential to streamline and automate tax-related processes, making it easier for companies to fulfill their tax obligations. This aligns with the theoretical expectation that technology can enhance efficiency in tax compliance. The positive correlation between IT system usage and tax compliance can be theoretically explained by the fact that these systems provide logistic companies with tools and resources to manage their tax-related tasks more effectively, reducing the burden of manual processes.

The second objective of this study was to determine the influence of Information technology features on raising tax compliance by logistic companies in Kenya. The findings showed that ICMS has provided transparency of the cargo clearance as the system eliminates human intervention and that i-tax system have effective functionalities which has boosted efficiency in tax registration and filing. Additionally, it was established that i-Tax and ICMS have friendly interfaces and features that facilitates simple process of filing and they are always available for use any time with reduced administration cost. However, correlation test showed that there was a positive weak relationship between IT system features and tax compliance (Pearson’s r=0.037, p<0.623).

Theoretical expectations suggest that advanced features in IT systems can enhance compliance by simplifying complex tax processes, reducing errors, and providing easy access to relevant information. The weak correlation may be attributed to the fact that while features are important, their impact on compliance may be moderated by other factors such as the usability and integration of these features within the overall tax management process.

The third objective of this study was to determine the influence of Information Technology security on raising tax compliance by logistic companies in Kenya. The findings showed that both i-Tax and ICMS systems guarantees security and confidentiality of business information and that logistic companies use i-tax to file taxes because of its convenience and security features provided. Also, it was found that logistic companies in Kenya have confidence in the security features in i-Tax and ICMS and they have not experience any cyber attack incidences on iTax system. Similarly, correlation test showed that there was a weak positive but insignificant relationship between IT system security and tax compliance (Pearson’s r=0.017, p<0.199).

Theoretical expectations suggest that strong security measures in IT systems are crucial for maintaining the confidentiality and integrity of tax-related information. Companies are more likely to comply when they trust that their data is secure. The weak and insignificant correlation may be attributed to the fact that while security is important, it may not directly influence tax compliance as much as other factors like the ease of use or the effectiveness of the system in simplifying tax-related tasks.

The regression results showed adjusted R2 = 0.114, which means that the predictor variables; IT system usage, IT system features and IT security explains 11.4% of the variability of tax compliance by logistic companies, which is a low effect. However, ANOVA showed that the model was statistically significant, F = 8.521, p = .000. This indicates that the model applied can statistically significantly predict tax compliance by logistic companies. Coefficients showed that that IT system usage influences tax compliance by 13.3% (β = 0.133, p=0.000<0.05), features of the IT system influences tax compliance by 29.1% (β = 0.291, p=0.818>0.05), while IT security influences tax compliance to a little extent, 0.1% (β = 0.001, p=0.520>0.05). Furthermore, hypothesis testing revealed that Information technology features and security have significant effect on tax compliance by logistic companies (P-value=0.818>0.05) and (P-value=0.520>0.05) respectively. Conversely, information technology usage has no significant effect on tax compliance by logistic companies (P-value=0.000<0.05).

# 5.3 Conclusion

This study concludes that IT systems have revolutionized the way tax management is conducted in Kenya. By streamlining processes, reducing manual paperwork and providing access to accurate data, IT systems have made the tax management process easier, faster and more efficient. Furthermore, IT systems have helped in ensuring that taxes are collected and paid fairly, making them an invaluable tool for governments and businesses. This study found that use of IT systems in tax management in Kenya has been a positive development, as it has enabled the government to streamline the process and make it more efficient. In particular, i-tax and ICMS have allowed for more efficient and accurate tax collection, as well as improved compliance with tax laws.

The results of this study revealed that IT system usage, reliance, features and security components have made it easier for taxpayers, particularly in logistic sector to access information, submit returns, and pay taxes accordingly. In the long run, this has boosted their tax compliance and overall tax revenue, which can be used to finance development projects and provide better services to the citizens of Kenya.

By enabling the efficient collection and management of taxes, IT systems have improved the overall efficiency of tax administration in Kenya and have allowed the government to better allocate resources. Additionally, the use of IT systems has brought about increased transparency and accountability in the collection of taxes, thereby increasing the public's trust in government. Finally, IT systems have also enabled the government to better monitor and control financial transactions, helping to detect and prevent fraud and other financial crimes. Therefore, the use of IT systems in tax management in Kenya has been beneficial and is likely to continue to be so in the future.

Nevertheless, this study revealed that information technology usage and reliance have no significant influence on tax compliance by logistic companies. However, information technology features and security were found to have significant effect on tax compliance by logistic companies. This shows that tax payers consider tax system features, functionalities and security features as factors that determine their use and their effectiveness in filing returns to remain compliant. In conclusion, the findings indicated that IT systems play an important role in improving tax compliance among logistic companies.

However, it is also possible that other factors such as organizational culture, economic incentives, or external regulatory pressure might be more influential in improving tax compliance. Therefore, further research is needed to examine the relative contribution of these other factors, and to identify any additional strategies that could be used to further increase tax compliance.

# 5.4 Recommendations

# 5.4.1 Practice and Management

Although this study did not establish any significant relationship between IT system usage, reliance and tax compliance by logistic companies, it is important to appreciate the effectiveness that i-tax and ICMS have brought to tax payers. Therefore, the study recommends KRA to ensure that their IT systems are easy to navigate and use. This is because when the taxpayer's perception IT system use is good, they will be more willing to adopt it, consequently improving their tax compliance.

This study established that there is a significant relationship between IT system features, security and tax compliance by logistic companies. Therefore, this study recommends that KRA need to ensure that their online system (i-tax and ICMS) have features related to their business and functionalities that are easy to use. Similarly, KRA should establish a more robust and secure tax systems to enhance trust and usage by logistic companies. This is meant to confirm to users that tax systems are secure and trustworthy. The level of trust of the taxpayer in using the tax system has a significant effect on increasing their level of compliance. Similarly, this will increase the efficiency and convenience of filing taxes which may lead to positive experience and attitude that would facilitate tax compliance.

# 5.4.2 Implication to theory

This study adds on the existing empirical studies on the extent to which IT systems influence on tax compliance in logistic sector. This study contributes to academic knowledge in several ways by providing evidence pointing towards significant application of IT systems in tax administration and management. This study confirmed various theoretical contributions and advances support for the relationships hypothesized. The results strengthen literature by Technology Acceptance Theory, Optimal Tax theory and Task Technology Fit (TTF) Theory.

# 5.4.3 Policy implication

Kenyan government through KRA should improve their policies, to incorporate new information technologies and automated tax systems. Additionally, KRA should formulate effective policies to ensure that IT systems deployed are effective, usable and secure for tax payers in order to boost tax compliance especially in the logistic sector.

# 5.5 Limitations of the Study

The study was limited by respondents’ fear in disclosing relevant information for the study. However, the researcher overcame this by assuring the respondents of strict confidentiality of any information disclosed. The study also focused on some of the very busy senior managers and scheduling appropriate timings was a challenge, this led to the researcher having a continuous re-scheduling of meetings until all of them were reached out.

# 5.6 Recommendations for Further Research

The study focused on the effect of IT systems on tax compliance of logistic companies in Nairobi, Kenya. The research primarily focused on eight logistic companies and focused on IT system usage, reliance, features and security components. Therefore, a similar study should be carried out and to focus on other variables and be extended to other companies in other sectors in Kenya. Moreover, the same study should be extended to other industries as well for better coverage and understanding.

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# APPENDICES

## Appendix I: Introductory Letter

Dear Sir /Madam

**Re: Participation in Academic Research Data Collection**

I am a postgraduate student at Moi University undertaking a study entitled: ‘The Effectiveness of Information Technology on raising Tax compliance by selected Logistic companies in Kenya’ as partial requirement for the award of master degree in tax and customs administration.

In respect of this, you have been selected to participate in this research by providing the information of interest by filling in the questionnaire. Kindly, note that the research is purely meant for academic purpose.

I am grateful in advance for your cooperation

Kind Regards

Signature: ………………………………………..

George Kay Kabiru

## Appendix II: Questionnaire

This research is meant for academic purpose. Kindly you are requested to provide answers to the questions as honestly and precisely as possible. Responses to these questions will be treated as confidential. Do not write your name or that of your department anywhere on this questionnaire but tick [√] where appropriate or fill in the required information on the spaces provided.

**SECTION A: Demographic Data**

1. Indicate your Gender: Male [ ] Female [ ]
2. Age bracket?

 Less than 29 years [ ] 30 – 39 Years [ ] 40 – 49 Years [ ] 50 years and above [ ]

1. Indicate your highest level of education

 Diploma [ ] Post Graduate Diploma [ ] Bachelor’s Degree [ ] Master’s Degree [ ]

1. How long have been working with Kenya Revenue Authority:

 Less than 5 years [ ] 5-9 years [ ] 10- 15 years [ ] Above 15 Years [ ]

5. Please state your designation

 Director [ ] Senior management [ ] Middle management [ ] Subordinate [ ]

**SECTION B: IT system Usage**

The statements below relate to the influence of IT system usage on efficiency of tax collection at Kenya revenue authority in Nairobi City County, Kenya. Kindly indicate your level of agreement based on the following options:

Strongly agree (SA)=5, Agree(A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly, Disagree (SD)=1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement**  | **5** | **4** | **3** | **2** | **1** |
| 1 | IT system has simplified effort for me to become compliant |  |  |  |  |  |
| 2 | We make use of i-tax return filing platform to remain compliant  |  |  |  |  |  |
| 3 | Use of i-Tax and ICMS has reduced time taken to pay tax and thus, we are tax compliant because of the technology platform |  |  |  |  |  |
| 4 | i-Tax and ICMS has allowed us for access to information or tax records by a touch of a button  |  |  |  |  |  |
| 5 | i-Tax and ICMS is efficient enough to facilitate us in filing tax |  |  |  |  |  |
| 6 | i-Tax usage has reduced tax compliance cost; it is now easy and convenient to file tax  |  |  |  |  |  |

**SECTION C: IT system reliance**

The statements below relate to the influence of IT systems reliance on efficiency of tax collection at Kenya revenue authority in Nairobi City County. Kindly indicate your level of agreement based on the following options:

Strongly agree (SA)=5, Agree(A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly, Disagree (SD)=1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement**  | **5** | **4** | **3** | **2** | **1** |
| 1 | We rely on i-Tax and ICMS to register, file and return tax  |  |  |  |  |  |
| 2 | We rely on i-Tax and ICMS to communicate with KRA; provides enquiry and feedback mechanism |  |  |  |  |  |
| 3 | i-Tax and ICMS have provided a more convenient way of accessing tax records  |  |  |  |  |  |
| 4 | i-Tax and ICMS have provided taxpayers with a 24/7 access to taxation services, therefore, using it when necessary |  |  |  |  |  |
| 5 | i-Tax and ICMS have helped taxpayers to have a better audit trail of their tax  |  |  |  |  |  |
| 6 | i-Tax and ICMS have increased my convenience of filing my tax returns |  |  |  |  |  |

**SECTION D: IT system features**

The statements below relate to the influence of IT system features on efficiency of tax collection at Kenya revenue authority in Nairobi City County. Kindly indicate your level of agreement based on the following options:

Strongly agree (SA)=5, Agree(A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly, Disagree (SD)=1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement**  | **5** | **4** | **3** | **2** | **1** |
| 1 | ICMS has provided transparency of the cargo clearance as the system eliminates human intervention |  |  |  |  |  |
| 2 | i-Tax system effective functionalities for efficiency in tax registration and filing |  |  |  |  |  |
| 3 | i-Tax and ICMS have friendly interfaces and features that facilitate a simple process of filing tax |  |  |  |  |  |
| 4 | i-Tax and ICMS are always available for use any time  |  |  |  |  |  |
| 5 | i-Tax and ICMS have reduced administration cost; they are linked to more convenient methods of payment like Mpesa |  |  |  |  |  |
| 6 | i-Tax and ICMS have provided a flexibility way of paying tax |  |  |  |  |  |

**SECTION E: IT system security**

The statements below relate to the influence of IT security on efficiency of tax collection at Kenya revenue authority in Nairobi City County. Kindly indicate your level of agreement based on the following options:

Strongly agree (SA)=5, Agree(A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly, Disagree (SD)=1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement**  | **5** | **4** | **3** | **2** | **1** |
| 1 | Both i-Tax and ICMS systems guarantees security and confidentiality of business information |  |  |  |  |  |
| 2 | We use i-tax to file taxes because of its convenience and security |  |  |  |  |  |
| 3 | Both i-Tax and ICMS systems provides secure functionalities as expected by taxpayers |  |  |  |  |  |
| 4 | We have confidence in the security measures provided in i-Tax and ICMS |  |  |  |  |  |
| 5 | There are less incidences of cyber attacks on iTax system |  |  |  |  |  |
| 6 | i-Tax and ICMS are protected from unauthorized access |  |  |  |  |  |

**SECTION F: Tax compliance by Logistic companies**

The statements below relate to tax compliance by logistic companies in Kenya. Kindly indicate your level of agreement based on the following options:

Strongly agree (SA)=5, Agree(A)=4, Undecided (U)=3, Disagree (D)=2, and Strongly, Disagree (SD)=1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Statement**  | **5** | **4** | **3** | **2** | **1** |
| 1 | Both i-Tax and ICMS has reduced bribery in tax administration  |  |  |  |  |  |
| 2 | Adoption of IT system has eliminated false tax returns and boosted compliance by logistic companies |  |  |  |  |  |
| 3 | IT system has eliminated inaccurate filing and tax avoidance by logistic companies |  |  |  |  |  |
| 4 | Both i-Tax and ICMS have simplified tax processes and made it easy for logistic companies to comply |  |  |  |  |  |
| 5 | Both i-Tax and ICMS have shortened time taken to extract tax information, thus boosting compliance by logistic companies. |  |  |  |  |  |
| 6 | Use of i-Tax and ICMS have re-aligned processes and increased effectiveness in tax compliance |  |  |  |  |  |

**-----END----**