IMPLEMENTATION OF ELECTRONIC TAX INVOICE MANAGEMENT SYSTEM AND REVENUE COLLECTION: CASE OF KENYA REVENUE AUTHORITY

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ABSTRACT

The link between the employment of an automated tax invoice management system and revenue collection had not been clearly defined in the scholarly literature. The Kenya Revenue Authority (KRA), with the assistance of the government, had put measures in place to ensure tax compliance for funding government projects. However, despite these efforts, the nation continued to encounter challenges in tax revenue collection. One prominent issue was the lack of consolidation in tax administrative procedures, as there was no single Tax Procedures Act governing both national and county governments. Therefore, this study sought to establish the effects of implementing the Electronic Tax Invoice Management System (eTIMS) on revenue collection, with an emphasis on user adoption and staff capacity. The study was guided by the Technology Acceptance Model a nd Diffusion of Innovation Theory as its theoretical framework. It adopted a descriptive research design to establish the correlation between the variables. The target population comprised 3,905 KRA officers working at the head office and branches within Nairobi County, with a sample size of 400 respondents. Purposive sampling techniques were used, and data was collected using structured questionnaires. The study employed both quantitative and qualitative analysis, with quantitative data tested using regression analysis, while thematic analysis was used to analyze responses from open-ended questions. The findings revealed that staff capacity ($\beta = 0.231$, $p = 0.004$), and user adoption ($\beta = 0.205$, $p = 0.001$). The study established that staff capacity also played a critical role, but issues such as understaffing, lack of dedicated technical support, and outdated infrastructure limited its effectiveness. The study concluded that while eTIMS had improved revenue collection, its effectiveness depended on complementary factors such as user-friendly system design, well-trained staff, and continuous taxpayer engagement. It recommended simplifying the system interface, expanding training programs, increasing technical personnel, and investing in scalable infrastructure to enhance compliance and optimize revenue collection. Future studies should explore the long-term impact of eTIMS on tax compliance, the role of digital literacy in adoption, and the effectiveness of tax incentives in promoting voluntary compliance.

Key Words: User Adoption, Staff Capacity and Revenue Collection.

INTRODUCTION

Mobilizing money to finance public expenditures and promote socio-economic initiatives is a crucial function of the Kenya Revenue Authority (KRA) in Kenya's economic development. Effective revenue collection is crucial to keep the government running smoothly, finance infrastructure improvements, and provide citizens with necessary services. Nevertheless, KRA has had difficulties with its conventional tax administration procedures, including inefficiencies, revenue leaks, and compliance concerns.

Governments that want to increase revenue collection efficiency in the modern tax administration environment must adopt technological solutions. The Kenya Revenue Authority (KRA), a key player in Kenya's fiscal landscape, has acknowledged the value of digital transformation in bringing tax administration procedures up to date (Mutinda, 2018). Among its projects, implementing a Tax Invoice Management System (TIMS) is noteworthy for being a critical step toward digitizing tax procedures, easing compliance, and enhancing revenue collection (Karuru, 2021). The Kenya Revenue Authority is essential in revenue mobilization to fund socioeconomic development initiatives and sustain government operations (Ejiku, 2019). The KRA's tax administration procedures were previously manual, which resulted in inefficiencies, revenue leaks, and compliance issues. KRA acted to update its tax administration systems in response, and the TIMS's deployment marked a crucial turning point in this process. Therefore, KRA has started efforts to update its tax administration systems in response to these difficulties and line with trends toward digital transformation worldwide (Gatheru & Gitonga, 2018). For instance, implementing the Tax Invoice Management System (TIMS) optimizes revenue collection efficiency, simplifies compliance procedures, and digitalizes tax invoicing. Also, the transition from paper-based invoicing to electronic documentation and reporting is marked by the launch of the TIMS (Gatheru & Gitonga, 2018). For their transactions, taxpayers must create and submit invoices under the new system. KRA will then authenticate and keep these invoices electronically.

Notwithstanding the potential advantages of the TIMS, several obstacles must be overcome for it to be successfully implemented, including worries about data security, technological limitations, and reluctance on the part of stakeholders and taxpayers. Furthermore, the system's ability to improve revenue collection efficiency and accomplish its intended goals necessitates careful assessment and oversight (Ejiku, 2019). The purpose of this study is to evaluate the effectiveness of the Electronic Tax Invoice Management System (IMS) on the revenue collection of Kenya Revenue Authority (KRA) (Karuru, 2021). Through an analysis of the experiences, perspectives, and results of the eTIMS deployment, this research seeks to offer critical new understandings regarding the efficiency with which electronic tax administration systems might improve revenue collection.

Electronic documentation and reporting system (IMS) have replaced paper-based invoicing. To be processed and maintained electronically by KRA, taxpayers must create and submit electronic invoices for their transactions. Several obstacles must be overcome for the items to be implemented successfully, including user adoption, staff capacity, taxpayer training, and

system management. The system offers many potential benefits, including improved compliance, enhanced transparency, streamlined processes, and data-driven decision-making. In the past, manual, paper-based tax administration procedures have been the norm in Kenya and many other nations worldwide. These procedures are frequently ineffective, prone to mistakes, and vulnerable to fraud. However, to increase effectiveness, transparency, and compliance, governments worldwide are now updating their tax administration systems in response to the emergence of digital technology. Several nations worldwide have effectively instituted electronic tax invoice management systems to improve revenue collection efficiency (Gatheru & Gitonga, 2018). For example, EU nations like Sweden, Norway, and Finland have implemented sophisticated electronic invoicing systems that have reduced tax administration procedures and raised compliance rates. Regionally, electronic invoicing technologies have allowed nations in East Africa, such as Rwanda and Uganda, to modernize their tax administration processes significantly (Mutinda, 2018). Electronic tax administration systems have many potential advantages. Still, their successful deployment must overcome several obstacles, such as data security issues, technological limitations, and taxpayer and stakeholder opposition to change. As a result, it's critical to assess how well the ETIMS implementation accomplished these goals and improved revenue collection efficiency.

Locally, Kenya's tax administration procedures are becoming much more digitalized with KRA's introduction of computerized tax invoice management systems. Electronic documentation and reporting have replaced paper-based invoicing with the Electronic Tax Invoice Management System (ETIMS) launch. For their transactions, taxpayers must create and submit electronic invoices under the ETIMS. KRA will then approve and maintain these invoices electronically. This change aims to increase tax administration's compliance, efficiency, and transparency. The Kenya Revenue Authority (KRA) has spearheaded initiatives to update tax administration procedures in Kenya. Previously, KRA generated, issued, and verified tax bills using manual procedures and paper-based documentation. However, KRA has started taking steps to switch to computerized tax administration systems after realizing the shortcomings of these outdated techniques (Gatheru & Gitonga, 2018). This study focuses on the effects of the electronic tax invoice management system on the KRA total revenue by considering the result of similar experiences from the international, regional, and Kenyan environments. It also looks at the transformation from the old manual way of doing it to the present electronic mode. Its objectives are to identify the strengths, weaknesses, and development options and potentials concerning the past and current Kenyan tax administrations.

Kenya Revenue Authority was formed in 1995 and since then has been the leading taxation body contributing a lot in the development of Kenya’s fiscal policy. Kenya Customs and Excise Department (CED), Income Tax Department, and VAT Department were the three revenue-collecting agencies that merged to establish it. The objectives of this consolidation were to improve revenue collection efficiency, fight tax evasion and avoidance, and streamline tax administration procedures (John, 2021).
Initially, KRA handled tax administration through manual filing procedures, paper-based documentation, and in-person interactions with taxpayers. However, as the world's

technological capabilities increased, KRA realized it had to update its tax administration systems to match changing taxpayer demands and global best practices (Gatheru & Gitonga, 2018).

This paper seeks to discuss some of the number of reforms that Kenya has embarked on to enhance collection of taxes in the country. The first began in 1986 and was for revenue mobilisation within the tax system and operated from 1986 to 1989. In 1990 the focus changed to on structural reform of the tax system for greater efficiency – replaced commodity sales taxes with Value-Added Tax. The third one which was designed as tax modernization started in 1995 and led to the creation of Kenya Revenue Authority (KRA) due to such challenges as faced by the National Treasury in administering tax.

In 2008 another system for the effective filing of taxes was made available and this was named the integrated tax management system. Last, the Finance Bill of 2019 introduced the KRA PIN and altered direct and indirect taxation, including measures. These reforms aimed to enhance tax administrators' capabilities, provide quality tax education, build infrastructure for tax activities, utilize technology for efficient service delivery, and improve data collection and reporting.

These initiatives aimed to create a functional tax system capable of generating sufficient revenue for public expenditure and addressing issues of inequality. Before the formation of KRA early 1995, tax administration responsibilities were divided among five ministries and departments which had bad results due to poor coordination and accountability. The creation of the KRA was geared towards rationalizing work, increasing efficiency, and increasing accountability in revenues by consolidating various activities of this nature in one body.

Currently, the KRA is operating under the National Treasury following its core mandate of performing essential assessments, accounting, auditing and enforcement of tax laws. It ensures compliance with tax laws, conducts audits or investigations when necessary, and has the authority to adjust taxpayer liabilities. In addition, it is clear from the above laws that the parliament has the power to enhance the operation of the tax agency by facilitating laws whereby institutions holding taxpayers' funds like banks can be compelled to pay-over such funds for squaring off tax dues.

Tax administration has registered several milestones, such as domestic taxes collection that reached Kshs. 1 trillion and customs collection, which has passed Kshs. 500 billion for the first time. Despite these successes, challenges persist, including how to implement taxation measures in the cash-based informal sector, limited access to current taxpayer information, deficiencies in consolidating the tax system, practical issues with the collection of taxes in border and remote locations, and concerns for designing an effective risk-based compliance model.

Statement of the Problem

The link between the establishment of an electronic tax invoice management system and the collection of revenues is still under-researched in the current database. The government through the Kenya Revenue Authority (KRA) has put measures that will compel individuals and companies to come up and pay adequate taxes that enable the government to meet its development agenda. However, there is still lots of difficulty with collection of tax revenue in the country.

One of the outstanding concern is the absence of harmonization in tax administration procedures since there is no single Tax Procedures Act to apply to both the national government as well as the county governments. Moreover, awareness measures, especially in sectors such as taxes, are insufficient, including special education. In Kenya's devolved system of government, tax is a combination of the national government and the county governments. The government earns its revenues from six main source s, which is estimated to range from Ksh 55 billion and Ksh 173 billion every financial year, as pointed out by Adam Smith International (2018).

In the KRA Corporate Plan (2023), the current collection per month is at Ksh 35 billion, and shows a revenue gap attributed to volatility of collection administration. Problems including inadequate human and technology, poor internal controls and high level tax laws noncompliance often act as a thorn in the way of tax collection implementation (Adam Smith International, 2018). The KRA frequently encounters challenges in tax assessment, particularly concerning the turnover tax for businesses (Karanja, 2018). Legal disputes arise, leading to appeals to the Tax Appeals Tribunal, resulting in prolonged resolution times. This informal business sector embraces over 70% of the employee base and poses lots of challenges in terms of generating amount of tax revenue due to scarcity of resources, poor compliance of the tax authority in implementing its tax collection strategies. A literature search investigates divergent patterns of revenue generation that results in failure to achieve targeted outcomes. This paper will endeavor to show through an example how the integration of a system reduces loss and improves on the collection of revenues. The current methodology has to be supplemented with a system of checking accountability in revenue collection in real time. Consequently, the purpose of this research was to assess the effects of the adoption of eTIMS on the revenue collection.

Objectives of the study

i. To assess the effects of user adoption on revenue collection at the Kenya Revenue Authority
ii. To assess how staff capacity affects revenue collection at the Kenya Revenue Authority

LITERATURE REVIEW

The study was guided by the Technology acceptance Model (TAM) together with the Diffusion of Technology theory which are discussed in detail below: TAM is a theoretical model developed with a specific aim to predict the usage of new technologies under different

conditions. Originally developed by Davis (1989), its application has been observed in the Areas of Information systems, Marketing and Organizational behavior. According to TAM, a person's intention to use a particular technology is primarily influenced by two factors: and two constructs of perceived usefulness and perceived ease of use (Davis, 1989). Davis (1989) defined perceived usefulness to mean a degree to which an individual feel that the use of a particular technology enhances his or her performance or achievement of goals. When it comes to electronic tax systems, taxpayers and tax authorities are likely to consider factors as to the usefulness of E-TIMs depending on the extent to which it helps to ease procedures, minimize errors and paperwork, and intensifies conformity assessment. For example, taxpayers may perceive the system as useful if it simplifies the process of submitting tax invoices and allows for faster processing of tax returns. Tax authorities, on the other hand, may perceive the system as useful if it provides them with better insights into taxpayer behavior, enables more effective enforcement of tax laws, and ultimately leads to increased revenue collection (Ibrahim et al., 2017).

Perceived ease of use is the extent to which an individual feel that using a particular technology will pose problems to him or her. In the electronic tax system context, features, which include ease of use of the system, user interface design, training and support and compatibility with other systems used, can determine how easy the users perceive the technology to be (Ibrahim et al., 2017). This article also supports the argument that, the taxpayers and the tax authorities are likely to accept the Electronic Tax Invoice Management System if only they consider it easy to use the system and develop positive perceptions towards it. On the other hand, the system could be appreciated but not adopted because it is viewed as complicated to use or difficult to be operated.

Perceived usefulness and perceived ease of use are two determinants of an individual attitude towards technology adoption in the TAM model. Moreover, the model envisages that factors from outside the individual influence the attitudes and intentions relating to the application of technology can also be an element.

In Revenue Collection through n Electronic Tax Invoice Management System, it is important to determine how the remit and the tax authorities view the usefulness and ease of use of the particular ETI system in order for the ETI system to be adopted in Revenue administration. Measures aimed at changing subjective attitude to the solutions and possibilities of the electronic tax system, namely providing the population with additional training, and improving the design and functions of the system, and dispelling their concerns regarding the security of their personal data could help eliminate adoption barriers and make the population more receptive to the electronic system. Additionally, efforts to create a supportive organizational culture, promote positive social norms, and provide incentives for technology adoption can further facilitate the successful implementation of electronic tax initiatives.

Diffusion Innovation Theory

The Diffusion of Innovations theory advanced by Everett Rogers in 1962 seeks to provide a framework of how the change, new idea, technology, product or practice is disseminated in a

society or among some individuals in society at a given time (Wani & Ali, 2015). The theory identifies several key elements that influence the adoption and diffusion process. Innovation as used in this paper is defined as a new concept, good or process that is perceived as new by users who may adopt it. In the case of electronic tax systems, the implementation of an ETIM System would be considered an innovation. Innovations can vary in complexity, from simple changes in procedures to more complex technological solutions.

Communication channels are the means through which information about the innovation is disseminated to potential adopters (Kaminski, 2011). These channels can include mass media, interpersonal networks, social media, and formal communication channels within organizations. Promotional communication aims at creating awareness of an innovation and changing the perception of potential adopters in relation to it.

The social system refers to the network of interpersonal relationships, norms, values, and cultural factors within a society or social group. These factors shape individuals' attitudes, beliefs, and behaviors, influencing their likelihood of adopting the innovation (Kaminski, 2011). This is important because most electronic tax systems are diffusion processes that depend on taxpayers, tax authorities, policymakers, and other stakeholders' willingness and evaluation of technology adoption, taxation, and government policies.

The diffusion process unfolds over time, with innovations typically spreading through a population in a non-linear fashion. Rogers categorized adopters into five groups based on when they adopt an innovation in relation to others: original design-using implementers, multiple design-using implementers, majority design-using implementers, restricted design-use implementers and ineffective design-use implementers. The diffusion curve illustrates how the adoption of innovation accelerates as it moves from early adopters to the majority of the population (Santacreu, 2015).

Relative advantage is the perceived improvement in the organization with the innovation as compared to the original practices. Innovations that offer clear advantages in terms of efficiency, cost-effectiveness, convenience, or performance are more likely to be adopted quickly and widely (Ashley, 2009). This paper focuses on the perception of taxpayers and the tax authorities in the adoption of an Electronic Tax Invoice Management System within the context of electronic tax systems if they view that the system has considerable benefits compared to the traditional paper tax system such as enhanced accuracy, reduced burden, and efficient compliance.

The adaptability of an innovation indicates how suitable this innovation is in the eyes of the pioneers in respect to its values, norms, practices, and necessity. The discoveries that align with the stakeholders' existing practices and perceptions, as well as with how they approach their work, are likely to be adopted and integrated into existing structures and practices (Santacreu, 2015). Compatibility with current tax administration practices, legal requirements, technology and Culture of practice likewise has a strong bearing in the case of the transmission of the innovation of electronic tax systems.

In this context, Complexity means the degree to which the innovation is considered to be difficult to grasp, or use. The higher the degree to which an innovation is perceived as being easy to use, consistent with users' know-how and approach, the more is the likelihood that it will be adopted rapidly and widely. Conversely, innovations that are perceived as complex, difficult to understand, or require significant learning and training may face resistance from potential adopters. Regarding electronic tax systems, measures that target the reduction of user perceived complexity include, ease of use and improved appeals for support, offering training and implementing information security and privacy measures.

Trialability in the context of the innovation diffusion theory is defined as the possibility of the potential adopters to experiment the innovation of limited size before undertaking full scale adoption. Innovations that offer opportunities for trial or pilot testing allow potential adopters to assess their compatibility, benefits, and drawbacks in a real-world context, reducing uncertainty and perceived risk associated with adoption (Santacreu, 2015). In the context of electronic tax systems, pilot programs or phased implementation approaches can allow tax authorities and taxpayers to evaluate the effectiveness and feasibility of the Electronic Tax Invoice Management System before scaling up adoption.

Empirical Review

User Adoption and Revenue Collection

According to Zhou, (2011) user adoption is where users begin to incorporate a new system or technology into their work practice. This concept is very important because system implementation does not only depend on the technical aspect of the system, or means used to adopt the system, but also on the extent to which the users adopt the system and how they use it to complete pre-specified objectives. Therefore several scholars have delved on this area of study, for instance globally, Ilieva, (2024) conducted a study on "Factors Influencing User Perception and Adoption of E-Government Services." The study was conducted in Bulgaria. To examine the connections between variables, different approaches that reflected the perspective of users of the internet were used by the study, such as machine learning, multiple criteria decision making and structural equation modelling. It holds that the probability of using e-government services mainly depend on the perceived trust, ease in using the services, and perceived risks, but not on gender, location or average income.

In Africa, Tahiru, and Agbesi, (2019) conducted a study on "Driver and Barriers of ICT Adoption in Revenue Collection in Ghana: A Case of Accra Metropolitan Assembly." The aim of this study was to undertake an inductive qualitative thematic analysis through Inter views and document analysis. The study pointed out that the decision to use electronic tax systems is affected by organizational, technological, personal and external factors which are the socio-economic and legal environments. Additionally, users are more likely to accept electronic tax systems if they believe they will help with tax compliance, lessen administrative costs, and improve efficiency in tax-related activities. Similarly, the degree to which electronic tax systems are adopted depends largely on how easy and convenient they are to use. Conversely, users' confidence in the dependability and security of electronic tax systems is crucial. Users'

readiness to embrace electronic platforms can be strongly impacted by worries about data privacy, secrecy, and the possibility of cyber-attacks.

Regionally, John, and Mokaya, (2018) conducted a study on "Perceptions of Taxpayers on the Adoption of Electronic Fiscal Devices in Revenue Collection in Tanzania:" A Case of Arusha Municipality. The study used inductive qualitative thematic analysis technique with the use of semi-structured interviews and documents. In a study done to determine the factors that affect the implementation of electronic tax systems by the users, the following factors or barriers emerged: Organizational, Technological, Personal and external Barriers: Socio-economic & Regulatory. The study established that the degree to which electronic tax systems are adopted by users significantly influences the amount of revenue collected. Increased rates of user adoption are linked to various favorable consequences that lead to improved revenue-collecting efficiency. For instance, people who engage in electronic tax systems have higher tendencies of giving compliance to tax requirements and providing their taxes accurately and on time. Electronic platforms make it simpler to retain records, report, and submit tax-related data, which lowers the possibility of mistakes, omissions, or willful non-compliance.

In Kenya Mak'Osewe, (2023) conducted a study on "Critical success factors affecting adoption of technological innovations and its influence on staff performance and revenue collection at Kenya Revenue Authority" the study used cross sectional study design. The target population comprised all KRA employees, and a sample of 370 employees was used from a stratified random sample. Primary data was obtained through an anonymous structured web-based survey while secondary data involved using records of the Key Resulting Areas (KRA) and corporate strategies. These studies establish that KRA staff has a high level of awareness and has widely embraced technological advancement in their working practices.

Staff Capacity and Revenue Collection

The ability of tax authorities to staff their workforce is crucial to the installation and smooth running of electronic tax systems. For tax officials to use electronic platforms and perform their jobs successfully, they must have access to sufficient training and skill development programs. According to Crane, (2021) Staff capacity refers to the capability of an organization's workforce to fulfill its objectives and effectively carry out its responsibilities.

In another study done empirically, Awitta (2015) assessed the effect of staff training on financial collection and services in different cities in the United Kingdom. Using regression analysis with data from 70 respondents across 10 cities, the study found that staff training significantly enhanced tax collection, attributing this improvement to the higher skill levels of trained personnel. Collins et al. (2016) established the link between staff capacity and tax collection through random sampling of 20 parking attendants in china. The research results established that job performance among the employees in the tax collection sector depends on feared external stimuli; some of which include perceived fairness of recent training practices and the ability of the subjects to deliver effective trainings.

In Africa, Sa'adu, Usman, Dauda, and Modi (2019) on the topic Quantitative research titled "Effect of Staff Capacity on Internally Generated Revenue in Kagarko Local Government Area of Kaduna State". The study implemented data from both primary and secondary research, it used regression analysis. The findings pointed to the fact that the amount of capacity among the staff affects the internal generated revenue of the local government. Also, L2 workforce capacity constraints may disrupt the working of electronic systems, resulting in inefficiencies and mistakes in revenue collection.

On a regional level, Ejiku (2019) undertook a research on the subject of implications of electronic tax systems on local revenue collection performance. In the context of the study, a descriptive survey design was applied with the URA domestic tax department 90 participants selected using a random sampling technique. The participants were selected using simple random sampling technique and data was collected using well developed structured questionnaires. This study established that several factors have bearing on the capacity of the staff working in tax agencies. For instance, investment in professional development initiatives, workshops, seminars, and training programs: Building and increasing staff capability requires a sufficient investment in these areas. Tax officials can keep up with the latest technological advancements, best practices, and developing trends in tax administration through ongoing learning and skill development. A collaborative, innovative, and excellent corporate culture creates an environment that is ideal for developing staff capability. Promoting employee engagement, motivation, and performance requires strong leadership, efficient management techniques, and open lines of communication.

In Kenya, Owino (2020) conducted a study on the ''The impact of staffing competence on revenues collection in the customs and border control department.'' Collectively, the research approach was descriptive as it targeted 54 staff members at the Busia border. Consistent with the previous literature the study established that the number of employees within the tax authority significantly affects the efficiency of revenue collection. For instance, tax administration activities can be completed more quickly, precisely, and efficiently by personnel who have received the necessary training and skills. This results in shorter processing times, fewer errors, and better taxpayer service. More revenue yields, more taxpayer satisfaction, and improved compliance are all impacted by efficient processes. Tax authorities can detect non-compliant activity, fight tax evasion, and enforce tax rules and regulations when they have enough staff. Tax officials can more effectively identify high-risk individuals, target enforcement actions, and recover unpaid taxes because of enhanced analytical capabilities and access to extensive data and information.

In a report by KPMG, (2019) it proposed that improved taxpayer services: Knowledgeable and well-trained employees can help taxpayers comprehend their rights and responsibilities, navigate complicated tax laws, and comply with tax requirements by offering them improved support, advice, and assistance. Increased collection of income taxes enhances more collaboration, consistency and independence between taxpayers and tax administrators hence, high compliance. However, the efficiency of collection of revenues by the tax authorities relies on its staff capacity, especially in the tax invoice management systems. Tax authorities can

increase staff competencies, operational efficiency, and revenue collection goals by funding training, development, and organizational capacity-building activities. The Kenya Revenue Authority instance serves as a reminder of how critical it is to develop staff capabilities to fully utilize electronic tax systems to improve revenue collection outcomes.

Revenue Collection

For any tax authority to meet its financial obligations and promote socioeconomic development, efficient revenue collection is essential. With an emphasis on the Kenya Revenue Authority (KRA), this section examines relevant research on revenue collection in the context of electronic tax invoice management systems (ETIMS). It also looks at obstacles to revenue collection efficiency and potential improvements to collection mechanisms. Because they allow for quicker, more accurate, and transparent transactions, electronic tax systems—including electronic tax invoice management systems—have completely changed the way that revenue collection procedures are carried out (Njenga, 2018).

According to Chebon (2019) research, the implementation of ETIMS can improve compliance through automated monitoring and enforcement methods, minimize errors, and reduce tax leakages. This can lead to a significant increase in revenue collection efficiency.

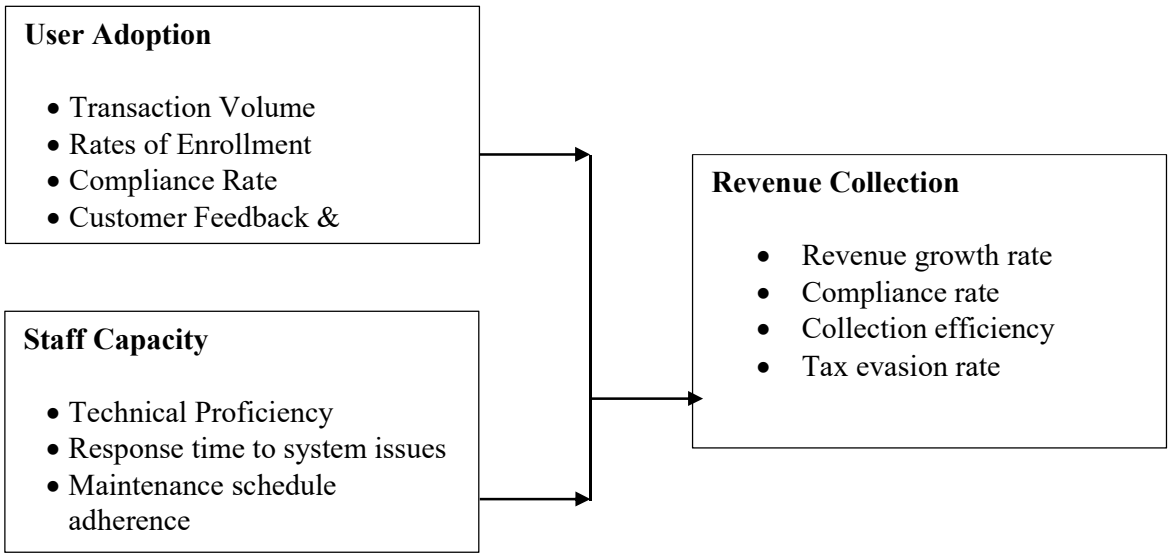
Research has established that by testing the hypothesis of the two variables there exists a positive correlation between generation of revenues and the compliance of taxpayers within computerized tax systems. Monica et al (2017) sought to explain how the electronic tax systems influenced revenue collection at the Kenya Revenue Authority (KRA). This study applied a cross-sectional survey and collected the primary data through administering a structured questionnaire whose reliability was checked using the Cronbach alpha coefficient. Using descriptive and inferential methods of data analysis, it was identified that most taxpayers consider the e-tax system as fully usable. Furthermore, the competence of employees was identified as a significant factor influencing tax generation efficiency, although the result was not statistically significant (t= -2.243, P=.154>5%).

Along the same line of thought, Owino et al. (2017) argue on the efficiency of ICT on revenue collections by County Governments in Kenya. The study design used in the study was cross-sectional and correlational surveys, targeting 864 participants inclusive of the 848 revenue clerks and 16 revenue officers. A total of 86 respondents was chosen by conducting stratified random sampling. The questionnaire was developed and validated for measuring the constructs for the study and also reliability check. The findings from the study which included both simple and multiple analyses showed the there was a positive relationship between the usage of ICT and revenue. In particular, the usage of ICT in tax payments was established to account for as much as 91.9 percent of the change in revenues in Kenya. The findings also highlighted that ICT enhances efficiency in tax assessment and collection, thereby boosting revenue generation. Maina in his 2013 study conducted a survey where primary data was gathered through administration of a questionnaire. In the regression model, there was evidence that both LAIFOMS (at 0.017 level) and employee skills contributed positively to the model and together could explain 27% of the variation in local authority revenue collection. According to the

study's findings, the LAIFOMS has realized that information technology enhances the revenue collection process, but challenges concerning the availability of resources and their accessibility posed significant challenge to the successful implementation of LAIFOMS.
Also, based on various studies, several measures can be implemented by tax authorities, including KRA, to effectively tackle these difficulties and maximize revenue collection. Investing in employee training and skill development to guarantee competence in operating computerized tax systems and responding to questions and complaints from taxpayers is known as capacity building (Mutua et al., 2016).

Conversely, to educate and raise trust among taxpayers regarding the security and dependability of electronic tax systems, as well as to debunk myths, focused education and awareness campaigns should be launched (Kariuki & Muthoni, 2017). Working together with stakeholders, such as business groups, taxpayers, and technology providers, to solve issues, gather input, and jointly develop solutions that improve the efficiency and acceptability of electronic tax systems is known as stakeholder engagement

Conceptual Framework



RESEARCH METHODOLOGY

This study employed the descriptive survey design thereby using both qualitative and quantitative methods to give a detailed analysis of the observed results. The target population encompassed all 3,905 KRA officers working at the head office as well as those based in the multiple branches within Nairobi. This group consisted of; Top management, senior tax officials, and working team. The study used stratified purposive sampling system. This covers a situation whereby the group carrying out the sampling has prior knowledge or experience with the sample in question. In this study, the sampling frame refers to a list of individuals who were of interest to the study as the population sample source (Kothari & Garg, 2014). Cooper and Schindler (2013) also call this as the working population since it offers a list that can be utilised practically for the purpose. The target population was developed from the 3,905 KRA employees who work at the head office and its branches in Nairobi. The Yamane (1967) formula was used to draw the sample size

$$n = N/(1+N(e)2$$
$$n=3905/(1+3905(0.05)2)$$
$$n=399.88$$
$$n=400$$

Table 1 Sample Size

Category	Population	Sample Size	Percentage
Top Management	365	38	9.5%
Senior tax officer	1540	157	39.25%
Operations	2000	205	51.25%
Total	**3905**	**400**	**100**

This study employed a semi-structured questionnaire; It contained both, closed – ended questions as well as open – ended questions. The questions were structured one and was put to the respondents depending on their position towards the implementation of eTIMS seeking the answers on the independent and dependent variables identified in the questionnaire part. The questionnaire was measured using a 5-point Likert scale measure equal to level of agreement/disagreement of the respondents regarding each statement that was provided in form of 'very dissatisfied', 'dissatisfied', 'neutral', 'satisfied' and 'extremely satisfied' with corresponding values assigned to each of them as 1, 2, 3, 4 and 5 respectively. Moreover, because of the unlimited possibilities, open-ended questions were also incorporated under each variable. Kiambu was selected for piloting purposes for the convenience of the researcher and because of its proximity to the study area and a pilot study was carried out. The researcher working together with the supervisors clarified any unclear questions and instructions in the survey instruments. This step helped to guarantee that the final type of the questionnaires is in proper form to be issued to the respondents.

The research processed the various responses obtained from the participants through sorting, editing and coding the data into an appropriate computerized system. Specifically, the

computer software was used to analyse quantitatively the data that was collected from the site. The first set of quantitative analysis was examined on the descriptive summary of the responses using means, standard deviation, frequencies and percentage. This study's application of multiple linear regression analysis is ideal for comprehending the ways in which several independent factors such as user adoption, staff capacity, taxpayer training, and system management affect revenue collection. While evaluating the extent of the relationship between the independent variables and the dependent variable and each independent variable in conditioning changes in the dependent variable (Uyanık & Güler, 2013). The analyzed data was presented using figures and tables.

The following model was used as the basis for the regression analysis.

Overall Model for Revenue Collection

$$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where;

Y = Revenue collection

X_1 = User Adoption

X_2 = Staff Capacity

ε = error term

β_1- β_4 = Coefficients for which we are trying to predict the value of Y as determined by the individual predictors

In addition to the quantitative analysis, the study also employed thematic analysis to interpret the qualitative data obtained from open-ended questions. This process involved familiarizing the researcher with the data, coding significant responses, identifying and reviewing themes, and then defining and naming these themes for clarity in the final report. The thematic analysis allowed for a deeper understanding of the qualitative aspects of the study, complementing the quantitative findings (Braun & Clarke, 2012). By incorporating both open-ended and close-ended questions, the research adopts a mixed-methods approach, enabling a comprehensive analysis that combines statistical relationships with qualitative insights. This approach provided a richer, more nuanced understanding of the research problem, as it not only identifies correlations and effects but also explores the underlying reasons behind the data patterns.

RESULTS AND FINDINGS

The researcher distributed 400 questionnaires to collect responses from the sampled target population. A total of 345 questionnaires were duly completed and returned, while 55 were neither filled nor returned, resulting in a response rate of 86.2%. According to Harrison, Reilly, and Creswell (2020), a response rate above 50% is adequate for analysis and reporting, while a response rate exceeding 70% is considered exceptional. Therefore, the study's response rate was excellent, making it suitable for analysis and drawing conclusions.

From the data collected, the distribution of respondents based on their gender indicated that 54.7% of the participants were male, while 45.3% were female. This relatively balanced distribution implies that the study captured diverse gender perspectives, which is critical for

enhancing the credibility and comprehensiveness of the results. Data on age distribution indicated that majority of the respondents fall within the 36-45 years age bracket, accounting for 37.5% of the total sample, followed by those in the 26-35 years category at 27.0%. Respondents aged above 45 years constitute 24.1%, while the youngest group, aged 18-25 years, represents the smallest proportion at 9.9%. The majority of respondents aged between 36-45 years and 26-35 years indicates that the sample largely consists of individuals in their prime working years, who are likely to have substantial work experience and practical knowledge related to the study's subject. Data on level of education indicated that majority of the respondents hold a Bachelor's degree, representing 47.1% of the total sample. This is followed by those with a Diploma qualification at 23.5%, while 22.4% possess a Master's degree. Respondents with a Certificate qualification account for 6.1%, and the least represented group are those with a PhD, comprising only 0.9% of the sample. The high percentage of respondents with Bachelor's and Master's degrees indicates that the majority are highly educated and likely have the necessary knowledge and skills to offer valuable input related to the study. On the duration working at KRA, majority of the respondents have worked in the organization for 4 years, representing 37.8% of the total sample. This is followed by those who have worked for above 4 years, accounting for 33.1%. Respondents with 3 years of service constitute 18.3%, while those with 2 years of service make up the smallest proportion at 10.8%. A higher percentage of respondents with 4 years and above of service indicates that the majority possess sufficient experience and are likely to provide more informed insights on the study variables.

User Adoption

Table 2: Statements on User Adoption

	Statement	1	2	3	4	5
1	The implementation of the new system has led to a substantial increase in transaction volume	8.1%	13.6%	24.6%	20.9%	32.8%
2	The rates of enrollment for users have risen, with a growing number of taxpayers currently on boarded onto the system	8.7%	12.2%	24.9%	26.4%	27.8%
3	The system has enhanced the compliance rate among taxpayers	11.9%	20.9%	26.4%	19.7%	21.2%
4	Presently, KRA is receiving positive customer feedback, indicating a perception of satisfaction regarding the new system.	12.8%	14.8%	26.2%	19.5%	26.7%

5	Despite recent economic challenges, the transaction volume has remained steady, showcasing resilience in our new system	12.2%	14.8%	33.0%	27.7%	12.2%
6	Efforts aimed at encouraging tax enrollment through targeted promotional campaigns have shown promising outcomes, with a noticeable rise in registrations for the new tax system.	6.4%	16.2%	36.2%	22.6%	17.7%

The findings on User Adoption reveal that the implementation of the new system has significantly influenced transaction volumes, user enrollment rates, and customer satisfaction. The results indicate that 32.8% of respondents strongly agreed that the system led to a substantial increase in transaction volume, while 20.9% agreed, demonstrating that the system has positively influenced revenue collection. These findings align with John and Mokaya (2018), who established that increased user adoption of electronic tax systems enhances revenue collection efficiency. Additionally, 27.8% of respondents strongly agreed that the system has improved user enrollment rates, reflecting the growing number of taxpayers being on boarded onto the platform. This is consistent with Tahiru and Agbesi (2019), who found that user-friendly ICT systems contribute to higher adoption rates.

Moreover, the study shows that 21.2% of respondents strongly agreed that the system has improved compliance rates, while 19.7% agreed, indicating that the system has played a role in enhancing compliance. These findings corroborate Ilieva (2024), who noted that the perceived usefulness of e-government services significantly influences user adoption and compliance behavior. However, a notable percentage (20.9%) remained neutral, suggesting that while the system has made strides in improving compliance, there may still be challenges in its full adoption. The study also found that 26.7% of respondents strongly agreed that the system has received positive customer feedback, aligning with Mak'Osewe (2023), who emphasized that user satisfaction is a critical determinant of technology adoption in revenue collection.

Despite recent economic challenges, only 12.2% of respondents strongly agreed that transaction volumes have remained steady, while 27.7% agreed. This indicates that while the system demonstrates resilience, external economic factors may influence its performance. Furthermore, 17.7% of respondents strongly agreed that targeted promotional campaigns have increased taxpayer enrollment, supporting Ndubula and Matiku (2021), who found that promotional campaigns significantly enhance user adoption of electronic tax systems. These findings collectively suggest that user adoption has positively impacted revenue collection, with promotional efforts and system reliability playing a pivotal role in driving enrollment and

compliance.

Thematic Analysis

Theme #1: System Complexity

Participants consistently highlighted the system's complexity as a barrier to effective use. The interface was perceived as unintuitive and challenging to navigate, especially for first-time users. The steep learning curve necessitated training that was either insufficient or unavailable, further aggravating user frustrations. Technical glitches and erratic system updates disrupted workflows, diminishing user confidence. A few participants emphasized how the intricate design made even basic tasks time-consuming, with one stating that despite training, usability remained a challenge due to the system's complexity. For instance, a respondent stated, *"The complexity of the system is hindering the usability."*

Theme #2: System Downtime and Network Issues

System downtime and network instability emerged as significant challenges that disrupted workflow and caused frustration among users. Many participants reported experiencing frequent interruptions, which slowed down operations and, in some cases, brought tasks to a complete halt. For instance a respondent stated *"Frequent system downtime due to network issues makes it impossible to complete tasks on time."* The unpredictability of network failures meant that users had to constantly restart processes, leading to inefficiencies and lost productivity. Some respondents noted that these issues were especially problematic during peak hours when multiple users were accessing the system simultaneously, causing it to crash or lag. Additionally, unreliable network connections often resulted in data loss, forcing users to repeat tasks or manually retrieve information, further exacerbating their frustrations, as noted by a respondent reiterated, *"The network is unreliable, and every time it fails, we have to start all over again, which wastes a lot of* time."

Theme #3: User Resistance and Literacy Levels

Low digital literacy and resistance to change emerged as major barriers to the adoption of the new system. Many users, particularly those with limited exposure to digital platforms, struggled to understand the system's purpose and functionality. For instance, a respondent illustrated this challenge, stating, "Hostility from the users as some are not well educated or informed, the difference between an invoicing system and tax obligation as some think eTIMS is a new tax being implemented." This lack of familiarity often led to confusion and, in some cases, outright rejection of the system. Some participants expressed frustration with having to learn a new process, while others mistakenly believed that the system was introducing additional financial obligations rather than streamlining existing ones. The gap in digital literacy meant that users required extensive training and support, yet the available guidance was often inadequate or ineffective. This resistance was further fueled by misinformation, causing skepticism and reluctance to engage with the system, as stated by a respondent, "*Without proper education and awareness, people assume the worst and resist change, even when the system is meant to help them."*

Theme #4: Reluctance to Use System

Reluctance to fully adopt the system was a recurring challenge, as some users were unwilling to generate invoices for all transactions. Many participants cited concerns over increased scrutiny, fear of additional tax liabilities, and the perception that the system imposed unnecessary bureaucracy as noted by a respondent, "*Some users feel that recording every transaction is too much work and slows down their operations."* Some users preferred to continue using traditional or informal methods of record-keeping to avoid what they saw as a more rigid and transparent process. Others expressed frustration with the additional time and effort required to input every transaction into the system, especially for small-scale businesses handling numerous daily transactions. There was also a sense of resistance from those who were accustomed to previous methods and saw no need to change. For instance, respondent highlighted this issue, stating, "*Taxpayers are not willing to use the system to generate all invoices for their transactions*."

Theme #5: Continuous Training and Awareness

Many participants emphasized the need for ongoing user training and awareness campaigns to ensure smoother adoption of the system. Users highlighted that initial training sessions were either inadequate or not accessible to everyone, leaving many struggling to navigate the system. For example a respondent recommended, "Continuous user training, simplification of the system, public awareness." Some respondents pointed out that misconceptions about the system's purpose fueled resistance, making public awareness campaigns crucial in addressing misinformation. Regular training workshops, step-by-step user guides, and accessible customer support were among the key suggestions to improve user confidence and efficiency. Another respondent added, "*Many users don't fully understand the system; ongoing training would make a huge difference."*

Theme #7: Incentive-Based Adoption

Participants suggested that offering tax incentives could encourage more users to embrace the system. Many believed that businesses and individuals would be more willing to comply if they saw tangible benefits in using the system. For instance, one respondent stated, "Introduce tax incentives for the taxpayers' customers who have the tendency of requesting for invoices." Some respondents proposed discounts, tax rebates, or rewards for those consistently generating invoices, making compliance feel less like a burden. Others suggested rewarding customers who actively request invoices, fostering a culture of accountability and proper record-keeping. Another respondent shared, "*If there were tax benefits, more people would be motivated to use the system*."

Staff Capacity

Table 3: Statements on Staff Capacity

No	Statements	1	2	3	4	5
1	KRA has a technically proficient team of staff members capable of effectively addressing system-related technical issues, ensuring minimal inconvenience to taxpayers	11.9 %	12.8 %	24.1 %	26.7 %	24.4 %
2	The staff demonstrates prompt response times to system issues, ensuring efficient resolution of any technical challenges	7.5 %	14.4 %	29.6 %	25.2 %	22.3 %
3	The staff adheres diligently to maintenance schedules, ensuring the smooth functioning and reliability of the system.	9%	21.5 %	30.5 %	23.3 %	15.7 %
4	The system experiences minimal downtime, thanks to proactive measures implemented by the staff to maintain optimal performance	8.1 %	18.8 %	31.6 %	23.5 %	18%

The findings on Staff Capacity indicate that the technical proficiency of staff plays a significant role in the effective implementation of the eTIMS system. The results reveal that 24.4% of respondents strongly agreed, while 26.7% agreed that KRA staff members possess the necessary technical skills to address system-related technical issues, minimizing disruptions to taxpayers. These findings are in line with Owino (2020), who posited that staff competence is a critical factor in enhancing efficiency in tax collection systems. Additionally, 22.3% of respondents strongly agreed and 25.2% agreed that the staff demonstrates prompt response times to system issues, which is consistent with Ejiku (2019), who found that staff capacity significantly influences the effectiveness of electronic tax systems. However, 30.5% of respondents remained neutral regarding staff adherence to maintenance schedules, indicating that there may be inconsistencies in routine system maintenance. This observation aligns with Sa'adu et al. (2019), who noted that inadequate adherence to maintenance schedules compromises the performance of electronic tax systems.

Thematic Analysis

Theme #1: Regular Knowledge-Sharing Sessions

One of the most recurrent themes that emerged from the data was the necessity for continuous knowledge-sharing sessions among system users. Participants articulated that system updates and operational procedures were not always disseminated effectively, leaving users uninformed about key changes. This lack of communication not only created a knowledge gap but also led to operational inefficiencies, as staff were often left to troubleshoot issues independently without sufficient technical background or guidance.

The call for regular sessions was driven by the recognition that systems like eTIMS evolve over time, and users need structured, routine opportunities to remain abreast of updates, new features, and best practices. The value of these forums extends beyond information transfer they also serve as spaces for staff to exchange experiences, collectively address challenges, and build a culture of learning and adaptability. One respondent suggested the use of active issue logs and timely dissemination of change notifications as part of a broader knowledge management strategy. Overall, the analysis underscores that institutionalizing knowledge-sharing practices could enhance user confidence, reduce dependency on technical teams for basic issues, and promote system ownership at all levels.

Theme #2: Dedicated System Support Teams

Another significant insight gleaned from the responses was the strong demand for the establishment of specialized system support teams. Many participants recounted delays and inefficiencies arising from reliance on general IT departments that were not adequately equipped or focused to handle system-specific challenges. These delays often translated to lost productivity, especially when system issues remained unresolved for extended periods. Respondents emphasized that eTIMS, being a critical revenue-related platform, demands a higher level of technical responsiveness and expertise. Dedicated support teams, solely responsible for managing eTIMS operations and troubleshooting, were proposed as an effective way to ensure immediate intervention whenever disruptions occur. Such teams would also be better positioned to anticipate common problems, provide tailored user support, and maintain a proactive maintenance culture. This recommendation aligns with best practices in digital system management, where specialized units are deployed to ensure platform stability and user satisfaction.

Theme #3: Internal Stakeholder Engagements

A recurring theme across multiple responses was the importance of engaging internal stakeholders through continuous dialogue and feedback mechanisms. Participants noted that poor internal communication between system developers, top management, and end users had contributed to resistance, confusion, and in some cases, disengagement. The absence of inclusive consultation during system rollouts or updates meant that users were often caught off guard by new procedures and functionalities, further complicating the adoption process.

Engagement sessions were therefore proposed as critical interventions to realign organizational expectations and ensure staff buy-in. These could take the form of consultative meetings,

refresher trainings, user feedback forums, or joint planning sessions. The data revealed that users were more likely to embrace the system if they felt their views were heard and incorporated. Moreover, involving frontline users in decision-making processes allows developers to anticipate usability concerns early and tailor the system for practical efficiency. This theme suggests that strengthening participatory approaches within the institution would enhance system integration and reduce friction during implementation phases.

Theme #4: Technical Infrastructure

The limitations of existing technical infrastructure were a prominent concern among participants. Many users reported working with outdated laptops, slow servers, and poor internet connectivity, which significantly hampered their ability to interact with the system effectively. These infrastructural inadequacies not only reduced efficiency but also contributed to negative user experiences, discouraging consistent use of the platform.

Participants recommended that substantial investments be made in upgrading hardware and improving network capabilities across all operational points. There was a shared understanding that the sustainability and reliability of eTIMS and any comparable digital platform rests on a robust infrastructure backbone. For example, slow data transmission speeds and frequent disconnections were highlighted as key contributors to transaction delays and data losses. In light of this, respondents advocated for not just reactive improvements, but a forward-looking approach that includes regular infrastructure audits and future-proofing measures. Enhancing infrastructure, therefore, is not merely a technical adjustment but a strategic imperative to ensure seamless operations and positive user perceptions.

Theme #5: Increased Technical Personnel

Lastly, the study revealed that the current volume of technical personnel was insufficient to meet the support needs of users. Several respondents noted that while the available IT staff were doing their best, they were often overwhelmed by the volume of support requests, resulting in delayed responses and unresolved issues. This constraint was particularly problematic during peak periods or system downtimes when timely intervention was critical.

To address this, participants called for the recruitment and deployment of more technically skilled personnel specifically trained on the system in question. Expanding the technical workforce would not only ease the burden on existing teams but would also ensure greater availability of support, shorter resolution times, and more personalized assistance. Furthermore, an expanded team would have the capacity to implement preventive maintenance, conduct regular user outreach, and provide real-time solutions thereby enhancing overall system efficiency. The analysis suggests that human resource capacity, particularly in technical roles, is an essential enabler for the long-term success of system implementation initiatives.

Revenue Collection

Table 4: Revenue collection

No	Statements	1	2	3	4	5
1	Revenue growth rate is witnessed since the introduction of the news system	15.7%	22%	31.3%	19.7%	11.3%
2	More taxpayers are compliant	13.6%	18.3%	26.4%	27.5%	14.2%
3	Collection efficiency has improved	11.6%	16.8%	32.2%	26.1%	13.3%
4	Tax evasion rate has significantly reduced	18.6%	21.2%	25.5%	20.3%	14.5%

Regarding Revenue Collection, the study findings suggest that the eTIMS system has had a positive impact on revenue collection performance. The results indicate that 19.7% of respondents agreed that the revenue growth rate has improved, while 27.5% agreed that more taxpayers are compliant. These findings are consistent with Monica et al. (2017), who established that the adoption of electronic tax systems leads to higher revenue collection and increased compliance rates. Furthermore, 26.1% of respondents agreed that collection efficiency has improved, while 20.3% agreed that tax evasion rates have significantly reduced. This supports the findings of Owino et al. (2017), who found that ICT-based tax systems improve tax collection efficiency and minimize tax evasion. However, the significant proportion of neutral responses across various revenue collection indicators suggests that while the system has shown positive outcomes, there is still room for improvement to fully realize its potential.

Thematic Analysis

Theme #1: Increased Compliance

A dominant theme among participants was the marked improvement in tax compliance following the introduction of the new system. Prior to its implementation, tax evasion through underreporting of income was common, with businesses exploiting the opacity of manual or informal transaction records. The automation and real-time transmission of data directly to the Kenya Revenue Authority (KRA) servers has significantly curtailed this practice by increasing transparency and minimizing opportunities for manipulation.

Participants noted that the system's structure ensures that every transaction particularly invoice generation is digitally recorded and submitted to the KRA in real time, creating a verifiable

audit trail. This built-in mechanism of automatic reporting serves as a powerful compliance tool by making it difficult for taxpayers to conceal or alter financial information. Moreover, the visibility offered by the system enhances enforcement capabilities and encourages voluntary compliance, as users become aware that evasion is more likely to be detected. Overall, this theme illustrates how digitization, when properly implemented, can directly contribute to enhancing revenue administration and reducing fiscal leakages in the public sector.

Theme #2: Reduction of Fraudulent Traders

Closely tied to the issue of compliance was the system's perceived success in reducing the presence of fraudulent traders particularly "missing traders" who previously evaded taxes by operating outside the formal regulatory framework. Participants acknowledged that the system has helped close loopholes that such actors once exploited, including the fabrication of invoices, false declarations, and the operation of ghost businesses that existed only on paper.
The real-time nature of data capture, combined with increased system integration and traceability, has significantly narrowed the space within which fraudulent traders could maneuver. As a result, previously undetected or hard-to-trace tax evaders are now being flagged, and their activities curtailed. Participants described the system as having “locked out” these actors, thereby fostering a more equitable business environment where all entities regardless of size are held to the same standards of accountability. This theme underscores how digital tax systems not only improve compliance among honest taxpayers but also disrupt systemic fraud, thereby restoring integrity and fairness in tax administration.

Theme #3: Reporting Channels

Another key area of focus among respondents was the creation of effective reporting channels to address specific revenue gaps particularly within the rental income sector. Participants observed that landlords often underreport rental income, taking advantage of the lack of third-party reporting mechanisms to evade tax obligations. To address this, many suggested the introduction of a tenant-facing reporting platform that would allow tenants to disclose the rent they pay, thereby enabling cross-verification with landlord declarations.

This recommendation reflects a growing awareness of the role third-party data can play in enhancing transparency and plugging revenue leaks. Participants believed that giving tenants the ability to submit rental payment information would compel landlords to declare income more accurately, as discrepancies could easily be flagged and investigated. Additionally, such channels would create a feedback loop that not only deters evasion but also empowers citizens to play an active role in revenue governance. The insights here reflect the broader theme that participatory mechanisms enabled through digital platforms can enhance the reach and effectiveness of modern tax systems, particularly in sectors where informal practices are deeply entrenched.

Multiple Regression

It was important to adopt multiple regression analysis, as it enabled the researcher to statistically examine the influence of various components of the Electronic Tax Invoice

Management System (eTIMS) on revenue collection at the Kenya Revenue Authority (KRA). Given that the study aimed to investigate the effects of implementing eTIMS on revenue collection, regression analysis was the most appropriate method to assess the strength and direction of these relationships. By employing multiple regression, the study was able to determine the extent to which each independent variable such as system management, taxpayer training, Staff Capacity, and User Adoption individually and collectively affected the dependent variable, which is revenue collection. This analytical approach controlled for potential confounding effects, allowing for a more accurate estimation of each variable's contribution.

Furthermore, the model summary provided by the regression analysis, including the R-squared and adjusted R-squared values, showed how well the variables related to eTIMS implementation explained variations in revenue collection outcomes. This step was essential to validate the predictive power and reliability of the model before delving into a detailed discussion of the findings.

Table 5 Model Summary

Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.831[a]	.690	.688	.5982	.690	150.91	2

Model Summary		
Model	Change Statistics	
	df2	Sig. F Change
1	340	.000
a. Predictors: (Constant), System management , Staff Capacity, Taxpayer training , User adoption		

The Model Summary table indicates the overall fit of the regression model. The R value of 0.459 represents the correlation coefficient, indicating a moderate positive relationship between the independent variables and revenue collection. The R Square value (0.210) shows that 21% of the variation in revenue collection is explained by the combined influence of User Adoption and Staff Capacity. The remaining 79% of the variation is attributed to other factors not included in the model, implying that while the independent variables significantly impact revenue collection, other external factors may also influence revenue outcomes.

The Adjusted R Square value (0.201) is slightly lower than the R Square, which adjusts for the number of predictors in the model. This indicates that the model is a good fit without being

overfitted. The Standard Error of the Estimate (0.5982) represents the average distance between the observed and predicted values of revenue collection, suggesting that the model provides reasonably accurate predictions.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	237.392	2	47.098	150.91	.000[b]
	Residual	106.681	342	.358		
	Total	344.074	344			

a. Dependent Variable: Revenue collection

b. Predictors: (Constant), Systtem management , Staff Capacity, Taxpayer training , User adoption

The ANOVA (Analysis of Variance) table tests the overall significance of the regression model. The F-statistic value of 22.628 with a significance level (Sig.) of 0.000 indicates that the model is statistically significant, meaning that the independent variables collectively have a significant effect on revenue collection. The low p-value ($p < 0.05$) confirms that there is less than a 5% likelihood that the observed relationship occurred by chance, thus validating the model's reliability.

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.499	.177		8.446	.000
	User adoption	.205	.056	.094	1.518	.001
	Staff Capacity	.231	.049	.036	.607	.004

User Adoption has a positive and statistically significant influence on revenue collection ($\beta = 0.205$, $p = 0.001$). This suggests that an increase in user adoption positively contributes to revenue collection, as more taxpayers engage with the system and comply with tax obligations. These findings align with Ilieva (2024), who noted that improved adoption of electronic tax

systems leads to enhanced revenue collection. However, challenges such as system complexity and network failures may still hinder full utilization, requiring further intervention.
Staff Capacity also has a positive and statistically significant effect on revenue collection ($\beta = 0.231$, $p = 0.004$). This finding supports Owino (2020), who emphasized that competent staff contribute to efficient tax collection. The positive impact suggests that increasing staff proficiency through training, technical support, and system maintenance can further enhance revenue collection. The model was therefore summarize as follows:-

Revenue Collection = $1.449 + 0.205X_1 + 0.231X_2 + 0.5$

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study sought to examine the impact of the Electronic Tax Invoice Management System (eTIMS) on revenue collection at the Kenya Revenue Authority (KRA) by analyzing four key factors: user adoption, staff capacity, taxpayer training, and system management. The findings reveal that Taxpayer training and staff capacity played positive roles, though their impacts varied in strength. The results suggest that while eTIMS has improved tax compliance and collection efficiency, challenges such as system complexity, inadequate training, and technical issues persist.

The study established that user adoption remains a crucial factor in the success of eTIMS, but challenges such as system usability, digital literacy, and resistance to change hinder full adoption. Many taxpayers expressed difficulties navigating the system, highlighting the need for simplification and ongoing user support. Additionally, staff capacity plays a vital role in system implementation, as skilled personnel ensure smooth operations, provide technical assistance, and address system-related concerns. However, understaffing and inadequate training may limit their effectiveness, emphasizing the need for continuous capacity-building programs.

Overall, the study concludes that while eTIMS has positively impacted revenue collection, its effectiveness is dependent on a combination of well-trained staff, user-friendly system design, and continuous taxpayer engagement. By addressing key challenges such as system inefficiencies, inadequate training, and user resistance, KRA can further optimize the system's functionality and encourage greater voluntary compliance. Moving forward, strengthening technological infrastructure, enhancing digital literacy, and expanding technical support services will be essential in ensuring the long-term success of eTIMS and improving revenue collection efficiency.

Recommendations

KRA to simplify the E-TIMS interface to enhance digital literacy: In order to enhance user adoption, KRA should focus on simplifying the eTIMS interface to ensure that taxpayers of all digital literacy levels can easily navigate the system. Public awareness campaigns and targeted training initiatives should be implemented to dispel misconceptions about eTIMS and

demonstrate its benefits. Additionally, offering incentives for early adopters, such as tax rebates or discounts for consistent system use, may encourage widespread adoption. Investing in a responsive customer support system that assists users with technical issues in real time will also improve adoption rates and compliance levels.

Regarding staff capacity, KRA should increase technical personnel to address system challenges more efficiently. Regular capacity-building workshops should be conducted to equip staff with the latest skills and knowledge required to manage eTIMS effectively. Additionally, KRA should establish a dedicated technical support team for eTIMS to provide real-time troubleshooting and assist taxpayers in resolving technical difficulties. Upgrading staff tools and resources, such as improving internet connectivity and providing high-performance computers, will further enhance system efficiency.

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