

I-TAX SYSTEM CAPABILITIES AND REVENUE COLLECTION BY KENYA REVENUE AUTHORITY

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ABSTRACT

Information technology advancements are revolutionizing business interactions and taxation, enabling real-time integration across tax regimes. The digitalization of taxes is dominating countries, and tax authorities must be at the forefront of offering guidance to taxpayers on policy direction on taxation and technology. Technology has enabled tax authorities to manage tax administration and enhance their performance in terms of tax collection using quality data, established systems, and employee technical skills efficiently and effectively. However, the inability to attain the tax revenue targets from collected revenue is still a challenge that the tax authorities are facing, despite the Kenya Revenue Authority indicating an upward trajectory in revenue collection. The general objective of the study was to examine the iTax system's capabilities and revenue collection by the Kenya Revenue Authority, focusing on the following specific objectives: tax registration, tax efficiency, tax compliance, and tax knowledge. The study was anchored on the technology acceptance model, neo-classical theory, and resource dependence theory. The target population was six million taxpayers. Using simple random sampling, 400 taxpayers were considered, of whom 287

filled out the questionnaire, translating to a 71.8% response rate. Primary and secondary data were gathered. The central tendencies of variables were measured using a descriptive statistic. The results from the inferential statistics were presented in tabular form, graphics, and charts. The study revealed that revenue collection was significantly influenced by tax registration, tax efficiency, tax compliance, and tax knowledge. The study concluded that tax compliance highly influences revenue collection, followed by tax efficiency, tax knowledge, and tax registration. Both variables had a significant positive correlation with revenue collection. The study recommends the need for the Kenya Revenue Authority to enhance tax compliance through ensuring accuracy and accountability of iTax-generated reports and onboarding more taxpayers into the iTax system to increase revenue collection against the targets. The enhancement of tax education in formal institutions, conducting training, and formulation of the Data Protection Act were suggested.

Keywords: I-Tax System Capabilities, tax registration, tax efficiency, tax compliance, tax knowledge and Revenue Collection

INTRODUCTION

Technological advancements are revolutionizing how business-to-business interaction through the automation of information systems, which enhances tax compliance and growth in revenue to finance public expenditures (Marcello, 2021). The transformation of taxation to provide real-time integration across tax regimes has been realized. This change is inevitable, as it impacts the functioning of organizations in an economy both positively and negatively. In an ideal world, tax collection would be optimal, with government conditioning tax policies

based on taxpayers' income distribution and needs (Jacobs, 2017). However, this is not possible due to unknown information, increasing costs, and fines for non-compliant taxpayers. Digitalization enhances tax enforcement technology by collecting reliable taxpayer data and implementing complex tax systems for better income redistribution, potentially allowing governments to lower tax rates and collect revenue (IMF, 2017). Digitalization poses risks such as the complexity of the tax system, data mishandling, privacy, and quality. Taxpayers face challenges in keeping up with technological changes due to inadequate digital skills, inadequate internet coverage, and poverty. The OECD (2018) highlights the need for improved tax collection and tax enforcement.

Globally, in most developed countries, the tax systems have been digitized to optimally collect the revenue that contributes to the development of their economies. Tax authorities worldwide are introducing new tax laws to deal with digital-world businesses (Garima & Rahul, 2016). The issues affecting the tax administration can be resolved on time, thereby increasing efficiency and effectiveness in the provision of services (Nazarov et al., 2019). Sarka and Beata (2021) suggest that digitizing business services, particularly tax administration in the Czech Republic, can save time, reduce costs, improve error detection, and enhance information accessibility, particularly for taxpayers familiar with electronic filing systems. A study on Russia's advanced tax system was studied by Imeda *et al.* (2021) to assess the maximization of tax from global digitalization. Comparing Russia with the US, EU, and OECD, the study found that digital technologies enhance tax collection, reduce compliance costs, and reduce business administration.

In Africa, the developing countries face challenges in funding national projects, with only a few countries implementing digital tax services. The OECD (2019) reports that while some countries have expanded their tax brackets to cover digital services, only a few have implemented these direct tax services. Some studies such as Adeleye (2019) and Chimbo (2020) conducted on ICT and the expansion of the African economic recommended the harnessing of the inherent benefits of ICT usage. South African Revenue Services (SARS) is aiming to offset its deficit budget by collecting all applicable taxes from eligible taxpayers, including VAT. SARS tax administrators should implement real-time access regulations to organization data and transaction reporting to increase tax revenue collection, as suggested by Deloitte (2022). Despite the studies suggesting the utilization of technology, the collection of tax revenues in the digital economy needs to be considered in sub-Saharan countries to be able to finance their developments.

Kenya, a developing country, faces challenges in revenue collection to finance its budget. Kenya Revenue Authority (KRA) is adopting digital services to optimize revenue collection targets. The implementation of internal control systems, including tax registration, online filing, and electronic tax payment, have significantly increased revenue collection by reducing non-compliant taxpayers (Maithya, 2020). Automation and integration reduce labor costs, improve product quality, and save time, improving organizational performance. Digitalization in taxation helps with tax compliance, accountability, and the easy dissemination of

information for training and research (ICAEW, 2022). This approach is crucial for Kenya's development.

I-Tax System Capabilities

In 2014, the i-Tax system was introduced as an automated system for domestic tax administration to promote compliance and accountability through e-registration, return filings, payment, TCC checks, and real-time account monitoring (KRA, 2016). The iTax system streamlines tax processes, reduces data extraction time, and improves accounting accuracy (Yarab, 2022). It digitalizes tax administration, transforms business models, and generates revenue (OECD, 2018). The iTax system's capabilities were assessed through tax registration, tax efficiency, tax compliance, and tax knowledge. The ability of the system to enable users to register, login and gain their personal identification number (PIN) that they use to transact activities. A good tax administration system should allow taxpayers to register timely and at a lower cost (OECD, 2018).

Hellerstein et al., (2018) reviewed simplified registration and collection mechanism for taxpayers that are not located in their tax jurisdiction. The findings indicated that simplified registration led to tax compliance. The study was conducted in EU states, where social factors are constantly evolving, as compared to Kenya where the research was carried out. This is substantiated by the Ater (2023) study, which found that information systems significantly improve tax registration. Tax registration process, time taken to register, and number of registered taxpayers were used to measure the tax registration. Tax efficiency involves paying the least amount of taxes required by law, reducing costs, and reducing the resources required for tax compliance. Digitalization of taxes can help reduce hidden costs like software, time spent on tax activities, hiring tax professionals, transport cost to the tax office, and anxiety related to tax audits (ICTD, 2014). Tax efficiency involves equalizing tax burdens on businesses and household owners (Dale & Yun, 2012). Tax efficiency is crucial for effective monitoring and deterrence of evasion. Therefore, the tax authorities must adapt to digital disruptions and be closer to business stakeholders to achieve efficiency and accuracy in tax collection, ensuring accurate and efficient data generation (EY, TaxTech India Survey, 2016). The indicators for measuring tax efficiency are the cost of filing, database accessibility, and real-time communication.

Tax compliance is defined as taxpayer registration, accurate submission of records and information into the system, and making appropriate payments (OECD, 2018). The iTax system ensures compliance through registration, data verification, enforcement of tax avoidance, and real-time reporting (Edina, 2019). The study measured tax compliance by determining how accurately the iTax system captures and records data and ensures timely filing of returns. Tax knowledge is crucial for taxpayers to comprehend the laws and regulations set out in the Income Tax Law, including tax types, collection procedures, taxpayer rights, and appeal systems. It also involves the practicalities of filing returns and understanding the connection between tax and public spending (ICTD, 2020). Through tax education, the connection between tax compliance and tax knowledge can be derived. In June 2023, KRA launched the Tax Base Expansion Program, bringing in 940,483 new

taxpayers through the Monthly Rental Income obligation and Block Management System (ICTD, 2020). Therefore, the study measured tax knowledge based on the taxpayer's IT literacy level, insight into tax laws, and public spending.

Revenue Collection

Patrick Campbell (2019), defined revenue collection as the process of collecting money that is owed or due to you. This study defines revenue collection as the collection of taxes for Kenya's government spending. Key sources of government revenue include taxes, rates, grants, gifts, borrowing, fees, licenses, charges, fines, and penalties. OECD (2021) describes tax as the mandatory charges imposed by the taxman to taxpayers. Rates refer to the taxation of the local properties. Gifts are contributions made voluntarily by private individuals or non-government organizations. Borrowing involves loans in bonds and deposits. Fees cover the cost of recurring government services for the public interest, while license fees grant permission to use something. Fines and penalties are charges imposed on individuals for violating laws. Kenya government's revenue, primarily through tax, accounted for 13.26% of GDP in 2021, with KRA's revenue collection based on achieving targets, which as Githii Mburu (2021) explains, is crucial for the country's economic sustainability.

The KRA's higher performance in FY 2022/2023 was attributed to higher excise tax collections, resulting in a performance rate of 116.2% with a surplus of sh925 million, exceeding the target (Annual Revenue Performance, FY 2022/2023). Domestic VAT collected Ksh272.452 Bn (11.3% growth), corporate tax Ksh 263.819 Bn (grew by 9.0%), PAYE Ksh 494.97b (grew by 7.2%), domestic excise Ksh 68.124 Bn (grew by 2.8%) and import duty Ksh129.987 Bn (grew by 9.4%). The growth was attributed to betting companies' integration, tax education, landlord recruitment, debt collection, alternative dispute resolutions, and technology systems like iTax and iCMS. The introduction to Digital Services Tax resulted in a 7.9% growth in collection, reaching Ksh 5.33 billion in the financial year ending June 2023. Abraham Mugo (2023), County Manager of International Budget Partnership-Kenya, proposes a shift from cash accounting to accrual accounting to manage pending bills and increase KRA's capacity.

Kenya Revenue Authority

In 1995, Kenya government established the Kenya Revenue Authority to collect, account for and manage the collected taxes. KRA comprises five departments: Customs Service, Domestic Tax, Road Transport, Support Service, and Investigative and Enforcement. The Customs Service manages import taxes, the Domestic Tax Department collects and accounts for local taxes, the Road Transport Department handles vehicle licensing and registration, and the Support Service handles legal services and corporate planning (KRA, 2015).

KRA tax obligations are divided into income tax, VAT, excise duty, capital gain, agency revenue, and turnover tax (TOT). According to Income Tax Act, Cap. 470, income taxes are collected from corporate tax, PAYE, advance tax, installment tax, and withholding tax. Corporate tax is levied on limited companies, trusts, and cooperatives, while PAYE taxes are collected from employed individuals. Advance tax is paid before vehicle inspections, while

installment tax is paid for individuals with tax payable above Kshs 40,000, and withholding tax is paid from dividends, interest, royalties, commissions, and management fees. Value Added Tax is the tax imposed on imported or locally produced goods and services. It is mandatory for companies with annual revenues exceeding Kshs 500,000. The supplies are categorized as standard-rated (16%), zero-rated (0%), or exempt supplies (VAT Act, 2013).

Excise duty is a levy imposed on imported and locally produced goods to discourage effects derived from the usage of such commodities (Excise Duty Act, 2015). The Commissioner of Customs Services collects both excise and import duties during the importation of goods. Other taxes collected include VAT (16%), import declaration fee (2.5%), and railway development levy (1.5%). Importers must compute and pay taxes according to international trade rules of the World Trade Organization (WTO). The Capital Gain Tax (CGT) is a tax imposed on net gains after a business or individual property transfers in Kenya, effective 1st January 2015. Agency revenue includes stamp duty, betting and pool tax, gaming, and lotteries taxes. According to Income Tax Act, Sec. 12(c), businesses generating sales of more than Kshs 1.0 million but less than Kshs 50.0 million annually are subject to turnover tax at 3% of total sales, effective January 1, 2020. KRA's revenue collection increased by Kshs. 586.255 billion (27.1%) from FY 2018/19 to FY 2022/23, due to the introduction of the iTax system in 2014, despite economic challenges. Therefore, this study determined how tax registration, tax efficiency, tax compliance, and tax knowledge have influenced revenue collection by the KRA.

Statement of the Problem

The contest of matching revenue collection against the targets in developing countries is a subject of debate. The digitalization of tax administration is required to streamline tax efficiency as well as accountability. Introduction of information systems such as the iTax System in 2014 was to boost revenue collection through increased tax compliance, transparency, real-time tax data sharing, and taxpayer satisfaction (PWC & Microsoft, 2017). The expansion of tax brackets like VAT to cover digital services is a strategy to mitigate technological disruptions in business operations (OECD, 2019). KRA implemented the iTax system to combat corruption and tax leakage, aiming to increase revenue collection. Despite maintaining an upward trajectory in revenue collection, the issue of attaining targets remains a significant challenge. KRA's average performance from 2017/18 to 2022/23 was 94.50%. In the fiscal year 2020/21, revenue collection exceeded targets by 17.0 billion, largely due to taxpayer compliance, economic recovery, and progressive tax policy (Githii Mburu, 2021). Various studies have been conducted associating tax registration, efficiency, compliance, and tax knowledge with revenue collection. For instance, Annrita (2018) discovered that iTax adoption by large taxpayers' influences revenue collection and efficiency. The Opiili and Kosgei (2023) study revealed that tax knowledge and awareness are effective strategies for improving compliance among residential rentals in the Kasarani Sub-County for revenue collection. Hellerstein et al. (2018) found that simplified registration led to tax compliance in B2C. Ngotho (2014) reveals compliance levels and tax rates as significant determinants in revenue collection. This corresponds with Helge and Sjursen (2014) studies conducted in

Kenya, Tanzania, Uganda, and South Africa investigating how residents perceive taxation by focusing on tax compliance, transparency, knowledge, and awareness.

Conversely, some studies pointed out that revenue collection is determined by factors such as tax evasion attitudes being experienced among students and tax complaints among entrepreneurs (Batrancea et al., 2022). The ICPAK (2016) study highlights the main challenges of the iTax system such as lack of technical support, lack of real-time communication interfaces, TCC approval procedures, integration with other platforms, and system intelligence - and focuses on its efficiency. According to Katua (2019), SMEs do not register their businesses to evade tax. Oeta (2015) exploited the abnormal variation, using data from both previously and afterward the implementation of the i-Tax System, whereas this study applied data after the i-Tax System's implementation. According to Githinji et al., (2014), the management information system positively impacted revenue collection in Kenya. These studies brought the conceptual gap that the current study examined i.e. the iTax system capabilities focusing on tax registration, tax efficiency, tax compliance, and tax knowledge as indicators influencing revenue collection in Kenya. Studies such as Adimassu and Jerene (2015) evaluated 377 samples through purposive sampling, whereas simple random sampling was deployed by the researcher. Oyebola and Victor (2022) used experimental variation, and their findings showed the elimination of duplicate tax payments, curbing tax dodging, and a reduction of 40% in the time spent filing the tax. Using a correlation research design and abnormal variation approach, Oeta (2015) discovered no association prior to the adoption of the iTax system, and an increase in revenue collection following the iTax implementation. The descriptive research approach was employed by the researcher, and post implementation iTax revenue data was collected.

Some studies conducted outside the Kenyan region support the idea that the digitalization of tax administration increases revenue collection. For instance, Ater's (2023) study on Nigeria's tax administration revealed that ITAS significantly enhanced tax registration, filing, and payment processes. South African Revenue Services (SARS) is collecting taxes from eligible taxpayers to offset the deficit budget and is considering VAT to expand its tax revenue collection Deloitte (2022). Fabrizio, Razan, and Tanele (2022) conducted the study at Eswatini on the response to COVID-19 using digital tax tools, and the findings revealed that the declaration and payment of taxes were enhanced by the electronic filing system. 60,000 taxpayers were assessed based on their tax returns and payments between 2007 and 2021. Turkey's government services are being achieved through electronically delivered services, necessitating user training and education (Stafford and Uran, 2011). However, other studies argue that revenue collection is not necessarily due to the digitalization of taxes but rather a result of consistent taxpayer registration in Sub-Saharan Africa (Moore, 2022) and user training, user support, and system stability taxation in Slovenia (Decman and Klun, 2015). These differ in social, economic, and technological factors from the Kenyan region where the current study was based. Thus, the researcher addressed the above literature gaps by determining the iTax system capabilities and revenue collection by the Kenya Revenue Authority.

Objectives of the Study

The general objective was to determine how iTax system's capabilities influence revenue collection by the Kenya Revenue Authority. The study's specific objectives were to establish how tax registration influences revenue collection by the Kenya Revenue Authority; to evaluate how tax efficiency influences revenue collection by the Kenya Revenue Authority; to examine to what extent tax compliance influences revenue collection by the Kenya Revenue Authority; and to assess how tax knowledge influences revenue collection by the Kenya Revenue Authority.

Research Hypothesis

The study's general null hypothesis was that the iTax system has no significant capabilities to influence the revenue collection by the Kenya Revenue Authority. Below were the specific null hypotheses:

H₀₁: Tax registration has no significant influence on the revenue collection by Kenya Revenue Authority.

H₀₂: Tax efficiency has no substantial influence on the revenue collection by Kenya Revenue Authority.

H₀₃: Tax compliance has no significant influence on the revenue collection by Kenya Revenue Authority.

H₀₄: Tax knowledge has no meaningful influence on the revenue collection by Kenya Revenue Authority.

Scope of the Study

Six-years' (2018–2024) time series of the revenue collected versus targets by the KRA was studied. The iTax users were evaluated to determine their tax registration status, tax efficiency, tax compliance, and tax knowledge of the iTax system.

LITERATURE REVIEW

Theoretical Literature Review

The theories that are relevant and are related to technological adoption and the performance of individuals and organizations are addressed here, thus forming an appropriate ground for the research were: Technology Acceptance Model, Neo-Classical Theory and Resource Dependence Theory (RDT)

In 1986, Fred Davis proposed the theory, explaining how people view and adopt new technology. According to Davis (1989), technological information usage is affected by the factors of perceived usefulness and perceived ease of use. The critique of the theory is that it is more useful for individual use than corporate or business use (Patrick, 2018). Segars & Grover (1993) re-examined the model, criticized it, and improved it by adding the three objectives of perceived performance, functionality, and usability of the system as the most important factors to consider when adopting new technology. Venkatesh & Davis (2000) examined the Davis Adams theory and critiqued the model as it only investigated the application and focused on aspects of systems' utilization, hence diverting attention from

other important factors and relationships, such as interpersonal influences. TAM is the most suitable when contemplating adopting information technology to improve the firm's performance. Ojuma and Kosgei (2023) investigated the rental income earners' tax collection and compliance strategies and suggested that TAM is a relevant strategy theory to consider when wanting to understand the benefits of adopting current technology towards tax collection. This study focuses on the KRA's adoption of information technology to enhance revenue collection by addressing tax registration, tax efficiency, tax compliance, and tax knowledge objectives.

Adam Smith became the proponent of the theory in 1776. The theory assumes that the demand and supply of goods and services are induced by the production, pricing, consumption, and distribution of income among consumers. This economic model addresses how scarce resources can be allocated in the long run to goods and services to enhance their production and increment. The theory assumes that the existence of perfect information makes people make a sound decision about the maximization of utility and income and that the markets regulate themselves due to demand and supply forces. Angner & Loewenstein (2012) criticized the theory, stating that it's out of equilibrium behavior and does not answer how the market arrives at the equilibrium price, as it describes perfect competition and the law of one price. Milton Friedman (1970) criticized the Adam Smith theory as unrealistic and flawed due to its complex mathematical model, arguing that theories should be evaluated based on their ability to predict events rather than by the realism of their assumptions. The Neo-classical theory is most suitable when addressing the principles of taxation, which are efficiency, equity, certainty, and production. According to Adam Smith (1776), when it costs less to collect the tax, then it's efficient. Equity in tax is when one with equal resources pays an equal amount of tax, and those with unequal resources should pay different amounts of tax (proportional tax). Adam further pointed out that the tax that citizens pay to the government should not be subjective but rather known in advance. The taxpayers need to know the period and the amount they pay while the government needs to be precise about how much it collects. Taxes should bring a substantial amount of money to the state, as their purpose is to raise revenue for the government to use in development. Oeta (2017) study, which was based on Kenya's western region, investigated iTax and KRA revenue collection and found that the Neo-Classical theory is relevant to the realization of an increase in revenue collection. Therefore, this study utilized the theory to address the iTax implementation and advancement by the taxman to increase collected revenue. A good tax system should be easy to use, productive, efficient, and effective. The theory helped to address the objectives of tax efficiency, tax compliance, and tax knowledge.

In 1924, John Donnein proposed the Resource Dependency Theory. The proposition of the theory is that for a business organization to obtain resources in an environment it's operating with other firms, it must trade with those firms. Since resources are scarce, one organization might maintain more than the other, causing dependence since resources are the basis for power. The theory assumes that organizations depend on external resources and face uncertainty in accessing them, thus establishing relationships with other firms to manage these uncertainties and meet these resources. The theory faces setbacks as it focuses only on external

resources as the only source of organization for success, overlooking the importance of internal resources and their capabilities. Pfeffer & Salancik (1978) developed the RDT proposing that for the firms to survive, they must adjust and enter into agreements with other actors in the surrounding area to secure the limited available resources. The capability for an organization to successfully handle its external resources makes it competitive in such an environment (Van Weele, 2018). This theory aims to understand how organizations need to collaborate with external factors to acquire these resources and survive in their operations. Lokarach & Rugami's (2019) findings revealed automated and integrated i-Tax systems being a significant towards the KRA performance as guided by resource dependency theory (RDT). RDT is very relevant to this study as it establishes how firms with superior systems and structures are viewed as profitable due to the higher production of quality products at a lower cost and the availability of resources. Therefore, RTD is useful to KRA to understand how to use the available resources to achieve its revenue collection targets by addressing the objectives of tax efficiency and tax compliance.

Empirical Literature

Ater (2023) conducted research on Nigeria's tax administration by reviewing the impact of digitalization and technology. The Integrated Tax Administration System (ITAS) streamlined tax registration, filing, and tax remittance, thus enhancing the administration of taxes and increasing revenue collection. The efficiency, transparency, and accountability increased in tax administration. However, the probe was carried out outside of Kenya, where the technological aspects are different, which the current study sought to address.

Moore (2022) conducted a study on tax obsessions: taxpayer registration and the informal sector. Using research publication, the findings indicated that continual registration of more taxpayers led to collection of more revenue. Therefore, under-taxation was realized in small enterprises and poorer people. The study's result was based on data from earlier research, which may not accurately reflect the circumstances that the current study would examine. According to Hellerstein et al. (2018), the simplified registration and collection mechanism for taxpayers in the B2C and the results showed that simplified registration and collection administrations represented an effective method to securing tax compliance when the jurisdiction is limited to enforce tax collection upon taxpayers.

ICTD (2023) reviewed whether real-time electronic invoices can fix VATs. The study was conducted in Rwanda, China, and Ethiopia, and the electronic invoicing systems indicated a positive outcome in enhancing tax enforcement and compliance. Real-time e-invoicing assists in curbing misreporting since the information from both sellers and buyers is received by the tax authority for easy verification. This increases VAT compliance, as evasion can be detected, and increases voluntary tax filing. Nassibou Bassongui (2023) reviewed Sub-Saharan Africa's tax digitalization. The regression model and analysis of variance model analyzed 182 articles, and concluded that the digitalization of taxes in Africa has contributed to the formation of new firms, improved tax compliance, and a cost cut in tax collection. The study further found that the revenues collected are positively impacted by the digitalization of

taxes in 27% of countries. As opposed to the secondary data used in Nassibou's study, the study employed primary and secondary data.

Opiili and Kosgei's (2023) study on tax collection strategies and compliance in Kenya's Kasarani sub-county, 274 respondents were sampled using a stratified sample model. Utilizing TAM, the study concluded that tax compliance was promoted among the landlords through the galvanization of public support through manual trust building. Tax knowledge and awareness were key when using modern technology systems. The researchers encouraged the use of competitive communication skills between taxpayers and agencies. The study recommended training taxpayers and setting up tax office networks in remote areas for easy access. Although the study showed positive indicators towards tax collection, it failed to address the usage and accountability of the tax collected, as this would motivate rental income earners to be tax compliant.

ICTD (2023) reviewed whether real-time electronic invoices can fix VATs. The study was conducted in Rwanda, China, and Ethiopia, and the electronic invoicing systems indicated a positive outcome in enhancing tax enforcement and compliance. Real-time e-invoicing assists in curbing misreporting since the information from both sellers and buyers is received by the tax authority for easy verification. This increases VAT compliance, as evasion can be detected, and increases voluntary tax filing. The study's focus, within the wider topic of revenue collection, was VAT compliance, while the current study addressed all types of taxes contributing to the revenue.

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Oyebola and Fabrizio (2023) highlight the importance of IT in Africa's tax collection. It suggests that the government should create programs and improve the technical, financial, and infrastructure of taxpayers who are less fortunate to address these challenges. The study also emphasizes the need for tax authorities to possess technical skills to enforce the implementation of technology.

Eswatini, Fabrizio, Razan and Tanele (2022) examined the mandate of digital tax tools as a response to COVID, and the findings indicated a reduction in the time spent reporting and paying taxes through e-filing. Due to the accuracy of electronic filing, the chances of taxpayers filing zero returns are minimal as the information on the amount of tax to pay and the deadline is accessible on the online platform.

Oyebola and Victor (2022) conducted the study in Tajikistan by studying how electronic tax filing affects technology, taxation, and corruption. Using a stratification strategy, 2,004 enterprises were chosen using an experimental variation design. Electronic tax filing was found to save up to 10% of firms' time spent on taxes, and the amount of taxes collected increased due to the curbing of evasion. E-filing saved tax-officials over 5,800 hours per month that could be redeployed to other uses, thus indicating that digitizing brings efficiency to organizational operations. The study examined how well technology works in taxes, while the focus of the study was how well technology works in accounting.

According to Batrancea *et al.* (2022), an investigation was conducted using the slippery slope framework on causes of differing attitudes on tax evasion between entrepreneurs and students. The existence of power and trust among the tax authorities was assessed using the scenarios method. Students were found to be more susceptible to dodging paying taxes, while entrepreneurs were mostly tax-compliant in the presence of trusted authorities. The respondents expressed low tax desire due to the high tax evasion experienced. The study ignored the causes of the low morale that the current study would investigate in favor of concentrating on the taxpayers' attitudes regarding tax evasion opposed to the study covering both.

RESEARCH METHODOLOGY

Research Design

The research design employed by the study is descriptive, used to determine the iTax system's capabilities and revenue collection by KRA. Descriptive research provides valuable insights into variables worth testing quantitatively. The behaviors of the variables are described and studied without effects. This design aligns with previous studies by Ojuma & Koisgei (2023) and helped to generalize findings to a large population.

Target population

Ngechu's (2004) definition of the population is an investigated environment consisting of people and their characterized resources where they gather to conduct their activities. The targeted registered taxpayers on the iTax system for the study were about 6 million (KRA, 2023).

Sampling Design

The procedure of picking a person from a wider group of persons to represent a study is called sampling (Gay, 1992). A 400 respondent sample was selected the by simple random sampling at a significant level of 5%. This ensured a representative sample of taxpayers, accurately reflecting the entire population. The study applied below Slovin's formula.

$$n = N/(1+Ne^2)$$

n = Sample Size.

N= Target population.

e= Sampling error at 5% significance level.

Therefore,

$$n = 6,000,000/1+6,000,000(.05)^2 \quad n = 400$$

Research Instruments

The method for data collection for the study was open and closed-ended questionnaires. The questionnaires were shared via email, dropped personally, and picked up. These measurable and usable forms saved time and were easily analyzed. The researcher gave enough time to the respondents to fill in the questionnaires and send them back.

Data Collection Techniques

Primary sources of data for this study were gathered using the structured questionnaires to gather primary data. Each questionnaire was divided into six parts: general information, tax registration, tax efficiency, tax compliance, tax knowledge, and revenue collection by KRA. The annual financial statements published by the KRA covering the fiscal periods between 2018 and 2023 were obtained as secondary data. The revenue collected was measured as amounts of tax collected against the targets.

Data Analysis and Presentation

The study used a descriptive and inferential statistics were used in the data analysis. To investigate how the independent variables are related and associated with the dependent variables, the study employed both the regression analysis and analysis of variance. SPSS vol. 21 was used for statistical analyses, while content analysis for qualitative data. The iTax system has no significant capability to influence Kenya Revenue Authority's revenue collection, is the null hypothesis. To show the variables are associated with each other, the empirical model below was applied:

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \mathcal{E} \dots\dots\dots\text{equation}$$

Where. Y= Revenue Collection. X1= Tax Registration; X2= Tax Efficiency; X3= Tax Compliance;

X4=Tax Knowledge and β_0 = Constant \mathcal{E} =Error term (shows the amount of variation between the estimate Y. Low error = better estimates) $\beta_1, \beta_2, \beta_3,$ and β_4 = Slope. (Indicate the level of variation in KRA revenue collected for every one-unit variation independent variable).

RESEARCH FINDINGS AND DISCUSSIONS

Descriptive Statistics

Tax Registration

The objective of the study was to establish how tax registration influences revenue collection. Table 4.4 below indicates the findings of tax registration on revenue collection. It was found that that 58.8% of the respondents agreed that tax registration has greatly enhanced access to technical support hence positively impacting revenue collection while 19.5% disagreed. Regarding the straightforwardness of the tax registration process, the majority of respondents who accounted for 57.8% agreed. On whether tax registration has reduced the documentation required, of the sampled respondents 65.2% agreed that the cost of documenting the records

has drastically reduced which is a positive way to go. Finally, the study revealed that a total of 75.6% agreed that tax registration has increased revenue collection. Therefore, this suggests the need for the tax authority to enhance and increase the registration of taxpayers into the iTax system. This is in line with the Edina (2019) that tax registration enhances compliance as the taxpayers can compile their information in one interface for more usefulness. These results also concur with Ater's (2023) research's findings undertaken in Nigeria that Integrated Tax Administration System (ITAS) streamlined tax registration, filing, and tax remittance, thus enhancing the administration of taxes and increasing revenue collection.

Table 4.1: Distribution for Tax registration

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Tax registration has greatly enhanced access to technical support.	5.9%	13.6%	21.6%	45.6%	13.2%
2. Tax registration process is straightforward.	8.0%	15.0%	19.2%	40.4%	17.4%
3. Tax registration has reduced the documentation required.	7.0%	9.8%	18.1%	47.4%	17.8%
4. Tax registration increased revenue collection.	5.6%	7.7%	11.1%	49.8%	25.8%

Source: Research Data (2024)

Tax Efficiency

The findings on the second objective on evaluating how tax efficiency influences revenue collection demonstrated the following. On whether the taxpayers found it easy and simple to access their data in the iTax system, 76.0% agreed while 12.9% disagreed and 11.1% were neutral. Concerning the accuracy and reliability of reports produced by the iTax system, 63.1% agreed, 13.3% disagreed while 23.7% were neutral. Regarding whether tax efficiency has led to the real-time sharing of information, 71.1% agreed, 12.6% disagreed while 16.4% were neutral. Lastly, for the statement whether tax efficiency has resulted in increased revenue collection, a 77.2% majority agreed, 15.0% disagreed while 10.8% were neutral. The findings are in line with the O Oyebola & Victor (2022) study in Tajikistan which found that electronic tax filing saves up to 10% of firms time spent on taxes, and the amount of taxes collected increased due to the curbing of evasion.

Table 4.2: Distribution for Tax Efficiency

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I find it easy and simple to access my data in the iTax system.	4.5%	8.4%	11.1%	50.9%	25.1%
2. Reports produced by the iTax system are accurate and reliable.	4.2%	9.1%	23.7%	47.4%	15.7%
3. Tax efficiency has led to the real-time sharing of information.	4.2%	8.4%	16.4%	51.9%	19.2%
4. Tax efficiency has resulted in an increase in revenue collection.	6.6%	8.4%	10.8%	54.7%	19.5%

Source: Research Data (2024)

Tax Compliance

Table 4.6 below analyses the third objective on examining the scope that tax compliance influences revenue collection. The outcomes revealed that 72.8% agreed that tax compliance has improved timely tax filing and payment. This has enabled the tax authority to increase revenue collection. Sixty three percent of the respondents agreed that the iTax system has enabled correct reporting and accountability of the paid taxes. Regarding the statement whether the tax compliance was due to the taxpayers' positive attitudes towards tax authorities, 47.0% agreed, while 27.9% were neutral. Lastly, 75.6% agreed that tax compliance has led to increased revenue collection. These findings agree with those of Opiili & Kosgei (2023) that tax compliance promoted tax collection among residential income taxpayers in Kasarani Sub- County. Bornman & Ramutumbu (2018) supported this in South Africa finding that tax compliance of individual is affected by the taxpayer's motivation, attitudes, and tax knowledge.

Table 4.3: Distribution for Tax Compliance

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Tax compliance has improved timely tax filing and payment.	4.5%	9.4%	13.2%	48.1%	24.7%
2. Accurate reporting and accountability have been achieved because of tax compliance.	3.8%	16.4%	16.7%	47.7%	15.3%
3. Taxpayers' positive attitudes towards tax authorities have been attained because of tax compliance.	8.7%	16.4%	27.9%	35.2%	11.8%
4. Tax compliance has led to an increase in revenue collection.	7.0%	5.9%	11.5%	52.3%	23.3%

Source: Research Data (2024)

Tax Knowledge

The last objective was assessing how tax knowledge influences revenue collection. The study revealed that 73.2% agreed that tax knowledge has enhanced awareness among them which is critical towards revenue collection. Further, 48.0% of study's respondents agreed that through their tax knowledge, they understood the government spending on the tax collected. 33.5% indicated not understanding how the government uses the collected revenue while 17.4% were neutral. On whether tax knowledge has helped in shaping taxpayers' attitudes towards tax registration, 60.7% agreed, while 22.0% were neutral. For the statement "Tax knowledge has contributed an upward trajectory in revenue collection", 60.7% agreed, 17.4% disagreed, and 19.5% were neutral. Finally, a total of 69.0% agreed that tax penalties are due to inadequate tax awareness, while 13.6% were against it and 17.4% neither agreed nor disagreed. The results concur with Gitaru & Kelvin (2017) that to increase revenue, taxpayers need to be educated to be compliant. This was further elaborated by Adimassu & Jerene (2015) in Ethiopia where that tax knowledge was one of the factors that influences taxpayers' behaviors towards voluntary compliance in SAS.

Table 4.4: Distribution for Tax Knowledge

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Tax knowledge has enhanced awareness among taxpayers.	4.9%	8.4%	13.6%	50.9%	22.3%
2. Because of my tax knowledge, I understand how the government uses the revenue collected.	13.9%	20.6%	17.4%	33.4%	14.6%
3. Tax knowledge has helped in shaping taxpayers; attitudes towards tax registration.	5.6%	11.8%	22.0%	50.2%	10.5%
4. Tax knowledge has contributed an upward trajectory in revenue collection.	5.2%	9.8%	19.5%	54.0%	11.5%
5. Tax penalties are due to inadequate tax awareness.	5.9%	7.7%	17.4%	42.2%	26.8%

Source: Research Data (2024)

Revenue Collection

The results show that 31.0% of respondents disagreed with the process of collecting revenue being straightforward and easy, while 52.9% agreed. In terms of the consistency of revenue collection, 29.2%, 17.4%, and 53.3% of respondents disagreed, were neutral, and agreed, respectively. Statement: On whether the revenue is collected on time, 36.2% were against, 16.0 undecided, and 47.7% agreed on timely collection of taxes. Additionally, 39.4% and 34.5% disagreed with the accuracy and efficiency, and cost-effectiveness of the revenue collection, respectively, while 16.4% and 18.1% were neutral. 44.3% and 47.4% of respondents agreed that revenue collection is accurate and efficient in a cost-effective manner. Therefore, the results suggest further improvement in the revenue collection process to ensure accuracy and cost-effectiveness.

Table 4.5: Distribution for Revenue collection

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The process of collecting revenue is straightforward and easy.	14.6%	16.4%	16.0%	28.2%	24.7%
2. How strongly do you agree that revenue collection targets are consistently met?	13.9%	15.3%	17.4%	26.1%	27.2%
3. How strongly do you agree that revenue is collected in a timely manner?	12.9%	23.3%	16.0%	24.4%	23.3%
4. How strongly do you agree that revenue collection is accurate and free from errors?	16.7%	22.6%	16.4%	19.9%	24.4%
5. How strongly do you agree that the revenue collection process is efficient and cost-effective?	15.3%	19.2%	18.1%	27.2%	20.2%

Source: Research Data (2024)

Descriptive summary

The descriptive statistics for the variables are as follows. Tax registration (N = 287) had a mean score of 14.33 (SD = 3.341), with scores ranging from 4 to 20. Tax efficiency (N = 287) had a mean score of 14.91 (SD = 3.188), also with scores ranging from 4 to 20. Tax compliance (N = 287) had a mean score of 14.38 (SD = 3.607), with a score range from 4 to 20. Tax knowledge (N = 287) had a mean score of 17.73 (SD = 3.773), with scores ranging from 5 to 25. Lastly, revenue collection (N = 287) had a mean score of 16.22 (SD = 3.417), with scores ranging from 8 to 25.

Table 4.6: Descriptive summary

	N	Mean	SD	Minimum	Maximum
Tax Registration	287	14.33	3.341	4	20
Tax Efficiency	287	14.91	3.188	4	20
Tax Compliance	287	14.38	3.607	4	20
Tax Knowledge	287	17.73	3.773	5	25
Revenue Collection	287	16.22	3.417	8	25

Source: Research Data (2024)

Correlation Analysis

The correlation found a significant association between the independent variables and the revenue collection. Tax registration and tax knowledge showed a moderately and positively correlation with revenue collection ($r = .449, p < .001$) and ($r = .525, p < .001$), respectively. Tax efficiency and tax compliance had a strong positive correlation with revenue collection ($r = .707, p < .001$) and ($r = .613, p < .001$), respectively.

Table 4.7: Matrix of Correlations

	Revenue Collection	Tax Registration	Tax Efficiency	Tax Compliance	Tax Knowledge
Revenue Collection	1				
Tax Registration	0.449**	1			
Tax Efficiency	0.707**	.758**	1		
Tax Compliance	0.613**	.733**	.715**	1	
Tax Knowledge	0.525**	.570**	.585**	.562**	1

** $p < .001$

Source: Research Data (2024)

Linear Regression

The independent variables included in the regression model were tax registration, tax efficiency, tax compliance, and tax knowledge. The dependent variable was revenue collection. The model’s results were $F = 11.731, p < .001$, and an R^2 value of 0.669, estimating that 66.9% of the variance in revenue collection can be justified by the models’ independent variables, thus being significant.

The Durbin-Watson statistic was used to measure the autocorrelation of the model, and the results was 1.876. This value is close to 2 bounds, suggesting that there is no significant autocorrelation in the residuals. Additionally, Variance Inflation Factor (VIF) and Tolerance values were used to evaluate the multicollinearity. The VIF values for Tax Registration (2.918), Tax Efficiency (2.83), Tax Compliance (2.556), and Tax Knowledge (1.664) were all below the threshold of 10, indicating no severe multicollinearity. The Tolerance values, which are the reciprocals of VIF, were also acceptable (all above 0.1), further supporting that multicollinearity is not a concern in this model.

When examining the coefficients, tax registration showed an unstandardized coefficient $B=2.149, t=4.438, p=.028$, demonstrating a significant positive influence on revenue collection as also evident in tax efficiency with an unstandardized coefficient $B=3.088, t =7.819, p=.011$. Tax compliance was the most influential variable, with an unstandardized coefficient $B=5.002, t =12.018, p=.008$, suggesting a strong positive effect on revenue collection. Finally, tax knowledge had an unstandardized coefficient $B=3.053, t =6.770$,

p=.017, indicating a significant positive influence. All the independent variables positively and significantly influence the prediction of revenue collection.

Table 4.8: Revenue collection linear model

	Unstandardized Coefficients		Standardized Coefficients		Test statistic		Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF	
(Constant)	16.075	1.092		14.724	0			
Tax Registration	2.149	0.104	0.146	4.438	0.028	0.343	2.918	
Tax Efficiency	3.088	0.107	0.282	7.819	0.011	0.353	2.83	
Tax Compliance	5.002	0.090	0.362	12.018	0.008	0.391	2.556	
Tax Knowledge	3.053	0.069	0.259	6.770	0.017	0.601	1.664	

Dependent Variable: Tax Collection, F = 11.731, p < .001, R² = 0.669, Durbin-Watson = 1.876

Source: Research Data (2024)

The study’s multi-regression model, which is indicated below, suggests that a change in tax registration unit will result in a change in revenue collection by 2.149 units, and a change in a unit of tax efficiency causes a change in revenue collection by 3.088 units. Similarly, the adjustment in tax compliance and tax knowledge with a unit will cause a change in revenue collection by 5.002 units and 3.053 units, respectively.

The equation below indicates the multi-regression model.

$$Y = 16.075 + 2.149X_1 + 3.088X_2 + 5.002X_3 + 3.053X_4 + 3.245$$

Where: Y = Revenue collection/ X₁ = Tax registration; X₂ = Tax efficiency; X₃ = Tax compliance; X₄ = Tax knowledge, 3.245 = Error term

Hypotheses Testing

The first research objective hypothesis (H₀₁) was that tax registration has no significant influence on the revenue collection by the Kenya Revenue Authority. Results in Table 4.12, showed the t-value of 4.438 with a significance level below the stated error margin at 0.028, thus rejecting the null hypothesis. The study concluded that tax registration influences the revenue collected by the Kenya Revenue Authority. These results agree with the research conducted by Hellerstein et al. (2018) on simplified registration and collection mechanisms for taxpayers not located in their tax territory. The findings showed that a simplified registration and collection regime effectively ensured tax in EU states.

The second research objective hypothesis (H₀₂) was that tax efficiency has no substantial influence on the revenue collection by the Kenya Revenue Authority. The results of the regression model indicated that tax efficiency significantly influenced the revenue collection unstandardized coefficient B=3.088, t=7.819, p=.01. These results correspond to an ICTD (2023) study on whether

real-time electronic invoices can fix VATs and found that VAT compliance can be enhanced through real-time invoicing as shared information can be verified by a tax authority instantly.

The study's third objective hypothesis (H₀₃) was that tax compliance has no significant influence on the revenue collection by the Kenya Revenue Authority. The null hypothesis was rejected by revealing that the increase in revenue collection against the targets is highly influenced by tax compliance through the t-value of 12.018 and a significance value of 0.008, which is below the stated error. These findings are consistent with Ngotho's (2014) study in Kenya on the determinants of revenue collection in developing countries, which found compliance level being affected by revenue collected.

The null hypothesis (H₀₄) for the fourth and final study objective stated that tax knowledge had no meaningful influence on the revenue collected by Kenya Revenue Authority. Tax knowledge obtained a t-value of 6.770, thus rejecting the null hypothesis at a significance value of 0.017. The results align with the research conducted in Turkey's government by Stafford & Turan's (2011), results indicating that training people, and education optimize operational e-payment of taxes.

CONCLUSIONS AND RECOMMENDATIONS

Summary

This study determines the influence of the iTax system's capabilities on revenue collection by the Kenya Revenue Authority, focusing on how tax registration, tax efficiency, tax compliance, and tax knowledge. The investigation was conducted in Kenya by assessing the taxpayers. Using the descriptive research design and the questionnaires distributed to the respondents, the research problem was solved. Primary data was considered the major source of data. Out of a target population of 6 million taxpayers, 400 sample sizes were considered adequate for the study, out of which 287 respondents gave feedback. Tables, charts, and graphs were used to easily visualize, understand, and interpret the findings of data analysis.

Influence of Tax Registration on Revenue Collection

Descriptive statistics were used in the study's data analysis. From the findings, the iTax system demonstrated the capabilities to enhance access to technical support from registered taxpayers. The iTax system simplified the process for registration when acquiring a PIN to be straightforward, as the taxpayers can register themselves anyway by not visiting tax authority offices. The reduction of documentation by saving on papers, hence enhancing sustainability, has been achieved through the iTax system. Finally, the iTax system has enabled real time sharing of taxpayers' information and transactions, hence positively impacting revenue collection. The association between tax registration and revenue collection was illustrated by inferential statistics. Using the coefficient of correlation, the results for the study indicated moderately and positively correlated. From the multi-regression model, the findings showed that tax registration was positively significant in influencing revenue collection. It was noted that at ceteris paribus, a unit change of tax registration led to a change in revenue collection with 2.149 units.

Influence of Tax Efficiency on Revenue Collection

Descriptive statistic results indicated that the iTax system had a strong capability by making it easy and simple for taxpayers to access their data anytime, anywhere. It was followed by an upsurge in revenue collection due to the efficiency of the system. The real-time sharing information becomes third, and lastly is the accuracy and reliability of the produced reports. Using the inferential statistics results, the establishment of the relationship between tax efficiency and revenue collection was drawn. After conducting coefficient of correlation analysis, the results for the study showed a strong positive correlation with revenue collection. Revenue collection was significantly positively influenced, as indicated by the multi-regression model results. The study further revealed that revenue collection will change with 3.088 units whenever the tax efficiency changes in a unit, while holding other variables constant.

Influence of Tax Compliance on Revenue Collection

The results of the descriptive statistics pointed out that the majority of taxpayers noted the rise in revenue collection being caused by tax compliance. The statement that tax compliance had improved efficiency in tax filing and payment came next. The iTax system has enabled accurate reporting and accountability, which have been achieved due to the tax compliance among the taxpayers. The taxpayers' positive attitudes towards tax authorities were noted as one of the contributors to the attainment because of tax compliance. The inferential statistics were used to analyze the study findings. The determination on how revenue collection and tax compliance relate to one another was tested. The results of the coefficient of correlation analysis revealed a strong positive correlation. The findings were further analyzed using the regression analysis, indicating revenue collection being significantly and positively influenced, thus suggesting that revenue collection varies with 5.002 units whenever the tax compliance varies in a unit while holding other variables unchanged.

Influence of Tax Knowledge on Revenue Collection

According to descriptive statistics results, tax knowledge was found to enhance awareness among the taxpayers, and that through the tax knowledge campaign done through the iTax system, the taxpayers understand how the government uses the collected revenue. The taxpayers further supported that the availability of the tax knowledge among them has contributed towards their registration into the iTax system, hence contributing to an upward trajectory in revenue collection. The penalties imposed on taxpayers in the iTax system were pointed out due to inadequate tax awareness from the tax authorities.

Inferential statistics were used to establish how tax knowledge relates to revenue collection. After conducting coefficient of correlation analysis, the study results indicated moderately and positively correlated. The multi-regression analysis showed that tax knowledge was positively significant in influencing revenue collection. It was noted that in the absence of other factors, a change in the unit of tax knowledge led to a 3.053 unit change in revenue collection.

Conclusion

In conclusion, the capability of the Kenya Revenue Authority to collect revenue was influenced by tax registration, tax efficiency, tax compliance, and tax knowledge. Tax compliance was found to

be the most influential variable, followed by tax efficiency. Despite the tax registration being the least influential factor, it has simplified and made it easy to navigate through the iTax portal.

Recommendations

The study recognized that all the variables were contributors towards increasing revenue collection. Tax compliance has been the most influential factor. If the tax taxpayers adhere to it, KRA will realize a drastic increase in revenue collection, thus meeting its targets and impacting economic growth. Tax registration should be within the merits of the Data Protection Act. The tax registration process has greatly increased revenue collection; however, small business owners are finding it difficult to get contracts with established companies. This therefore is a disadvantage to the low-income business owners, and therefore, the Kenya Revenue Authority should come up with a threshold for certain levels of income earners for compulsory registration both on eTims and iTax systems. Tax registration should be enhanced, as it helps to combat corruption. The accuracy and accountability of the reports should be enhanced. The inclusion of tax education programs in formal institutions.

Enhancement of tax efficiency creates a good atmosphere of transparency, thus reducing the cases of revenue collection miscellaneous. The issue of picking up on wrong figures, especially for people with multiple businesses, is an issue of concern and needs to be addressed. The penalty for noncompliance has kept Kenyans alert on iTax. When the iTax system enhances accurate reporting and accountability in taxes paid, it builds the taxpayer's confidence that there are no fraud cases, hence scaling up the morale of timely tax compliance. More awareness of tax policies and regulations should be laid out to each entitled taxpayer, as through the enlightenment, it reduces fines and penalties. The consideration of the introduction of tax knowledge in formal education is key. KRA should also institute policies on protecting and rewarding the whistleblowers on tax evasion.

Suggestions for Further Studies

Additional research needs to be conducted to narrow down the gap since, according to the regression model results, the variables evaluated in this study only account for 66.9%, suggesting that 33.1% are explained by other variables that influence revenue collection. The enactment of the iTax system in county governments is crucial, and the study recommends an investigation into this. It is imperative that research be done on how the iTax system and eTims interact to improve revenue collection.

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