



**The impact of the e-tax systems in improving tax collections and accountability in South Sudan a case study of the National Revenue Authority (NRA), Juba-South Sudan**

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**ABSTRACT**

The main purpose of this study was to assess the impact of the *e-tax system* on revenue tax collections and compliance in South Sudan. This research looked at three specific objectives which are the impact of the e-tax system on improving tax collections and compliance, the challenges faced by taxpayers in using the e-tax system. and the ways of improving the electronic tax system to enhance tax accountability. The study employed a mixed-method approach, combining both quantitative and qualitative data collection techniques. A total of 70 structured questionnaires were used to collect quantitative data from the respondents within the National Revenue Authority and the target population. These questionnaires were used to assess the effectiveness and impact of the e-tax system. Data analysis was conducted using Statistical Package for Social Sciences (SPSS). The study revealed that there are impacts of e-tax systems on improving tax collection and compliance in that the e-tax systems have made it easier for taxpayers to file their taxes, the e-tax systems have improved the transparency of tax information, the e-tax systems have led to a significant increase in tax compliance among taxpayers and the e-tax system has resulted in more accurate tax filings and payments. The study also found that there are challenges faced by taxpayers in using the e-tax systems in that users have experienced technical issues while using the e-tax systems, users are concerned about the security and privacy of the information in the e-tax systems and the e-tax systems lack adequate support for taxpayers facing difficulties. Furthermore, the study showed that the ways of improving the electronic tax systems to enhance tax accountability include improving the user interface and navigation of the e-tax system would make it easier to use, enhanced error-checking features should be integrated into the e-tax systems to reduce inaccuracies and the e-tax system should be enhanced through dedicated support channels, such as helplines, email support, or live chats. The study recommended that the National Revenue Authority needs to automate its revenue collection, by partnering with commercial banks and mobile phone networks whereby the taxpayers will be given the option of paying fees through mobile money or branded credit cards via a new revenue collection system.

**KEYWORDS:** Work: E-tax systems, Tax Collections, Accountability, South Sudan, National Revenue Authority

**1. Introduction**

Considerable Electronic tax administration systems have gained prominence in Sub-Saharan Africa (SSA) in the 21st century. This has been spurred on by the need for improved efficiency and accountability in taxation systems; and inherently, the adoption of Information Technology (IT) tax-based systems (Organization for Economic Cooperation and Development [OECD],2019). Population growth and demands for transparency in tax administration policy have further emphasized the need for better revenue collection systems and policies in East African countries (Balunywa, et al, 2014). Electronic tax systems are designed with a need to reduce the cost of tax administration, ensure ease of compliance, and provide for accuracy and equity in tax administration (Balunywa, et al, 2014). Integrating e-tax systems has been found to facilitate tax collections, compliance, and administrative efficiency worldwide. The Organization for Economic Co-operation and Development (OECD) supports enhancing tax administration through digital means and simplifying cross-border transactions (OECD, 2014). From a global perspective, Alm and Gray (2014) discussed the impact of

electronic tax administration in several countries. It underlines the increase in tax compliance and reductions in administrative costs. However, the authors also point out the challenges involved with limited digital infrastructure and inadequate legal frameworks. The implementation of digital tax systems is widespread. The European Union, for instance, has adopted e-invoicing and electronic VAT reporting systems. The OECD has been encouraging its member states to leverage technology in tax administration and simplify cross-border tax transactions (OECD, 2014).

Countries like Brazil have made significant strides by utilizing a comprehensive e-tax system, aligned with real-time reporting (Barreix, et al.,2017). In developing countries, the adoption of e-tax systems has also been on the rise. Governments are investing in digital infrastructure to facilitate tax administration, reduce tax evasion and tax avoidance, and enhance transparency in tax collections. Examples include included in Nigeria's Integrated Tax Administration System (ITAS) and South Africa's electronic filing system (e-Filing) (Fjeldstad et al., 2018). The adoption of e-tax systems requires addressing various factors,



such as technological, legal framework, organizational, and human-related factors, to facilitate their successful implementation. Tailoring the e-tax system to the specific context of a country or region is essential to ensure its effectiveness and acceptance by taxpayers and tax officials alike (Gitaru, 2017). Gathering taxpayers' perceptions and experiences with e-tax systems can provide valuable insights into the system's performance and its potential for improvement (Mkwizu et al., 2020).

Previous studies on the e-tax system in the United States and European countries have focused on taxpayers' satisfaction and the drivers of voluntary compliance with e-tax systems. However, the implementation of e-tax systems in developing countries often faces numerous challenges. These may include limited digital infrastructure, inadequate legal frameworks, and insufficient human resources and skills required to administer the system (Alm and Gray, 2014). Moreover, poor compliance with tax regulations, corruption, and tax evasion may also hinder the effectiveness of the e-tax system in these settings (Fjeldstad et al., 2020). The development of robust e-tax systems requires a comprehensive understanding of tax laws and regulations, information technology, and user preferences (Stafford and Turan, 2011).

Identifying and addressing potential barriers and challenges is essential to ensuring the successful implementation of the e-tax system and achieving its objectives, such as increased tax revenue and reduced administrative costs. Empirical studies can help identify potential barriers to the successful implementation of e-tax systems, such as tax complexities or lack of digital literacy among taxpayers (Mkwizu et al., 2020). Furthermore, research on the institutional and regulatory environment can provide insights into how these factors may impact the implementation of e-tax systems (Alm and Gray, 2014). In African countries, adopting e-tax systems has been gaining traction for its potential to optimize tax revenue and improve tax administration. For example, Nigeria and South Africa have implemented Integrated Tax Administration Systems (ITAS) and e-filing, respectively. Nonetheless, issues like compliance with tax regulations, corruption, and tax evasion persist in these regions (Fjeldstad et al., 2018). A study conducted by Sanni (2014) evaluates the Nigerian income tax system's effectiveness in mobilizing revenue and suggests an e-tax system tailored to Nigeria. The author highlights the need for a well-designed e-tax system, emphasizing transparency, increased tax payments, efficiency, and a broader taxpayer database.

The adoption of e-tax systems has been found to influence tax compliance positively. For instance, a study conducted in Zimbabwe revealed that e-filing systems promote ease of doing business and have a positive impact on tax compliance (Bananuka, et al, 2018). However, the study also identified challenges such as the non-availability of the Internet and knowledge gaps as significant barriers to the successful implementation of e-filing systems. In addressing these challenges, measures such as training tax officials through workshops, increasing network coverage, change management, and the use of cloud computing have been suggested. These measures aim to mitigate the failure of

companies to embrace e-filing and improve tax compliance (Bananuka, et al, 2018).

The utilization of e-tax systems in East Africa has accelerated in recent years. For instance, Kenya's integrated iTax system has been successful in reducing tax evasion, administrative costs, and noncompliance, according to a study by Obare et al. (2017). However, they discovered that user adaptability and connectivity issues continue to be challenging in the successful implementation of the system. Kenya, through the Kenya Revenue Authority's iTax system, and Rwanda, using the Electronic Billing Machine, have seen improvements in tax compliance (Nkundabanyanga, et al, 2017). However, Tanzania has experienced challenges in adopting a similar system, indicating a need for further research on how to address these issues (Barati et al, 2014). Similarly, Kadigi and Buberwa's (2016) study on the impact of Tanzania's e-tax system reports significant improvements in revenue collection, service delivery, and customer satisfaction. The authors emphasize the importance of digital infrastructure and proper training for taxpayers and tax administrators to enhance the system's effectiveness.

In the context of South Sudan, little research has focused on the effectiveness of electronic tax systems, and the challenges the country faces in enforcing the e-tax systems such as political instability and limited infrastructure, further complicate the implementation of e-tax systems. A study by Abraham (2018) explores alternative revenue sources, including mining and tourism, but does not specifically address the e-tax system's implementation in detail. In South Sudan, much of the tax collection and administration still rely on manual processes, limiting the country's potential for improving tax compliance. This represents a valuable research gap thus; the researcher aims to bridge this existing gap in South Sudan's e-tax systems so that remedies and solutions to these hindrances for its full operationalization are arrived at. Since the establishment of South Sudan as an independent nation in 2011, it has been consistently grappling with political instability, economic challenges, and underdeveloped infrastructure (World Bank, 2020). These factors have contributed to the limited implementation of e-tax systems in the country.

Given this background, a pressing necessity exists for a comprehensive study of the impact of the e-tax system in South Sudan. By examining the successes and shortcomings of e-tax systems regionally and globally, South Sudan can derive valuable insights to inform the design and implementation of an effective e-tax system tailored to their specific context. This study aims to address the existing research gaps and contribute to the understanding of how e-tax systems can improve tax collections and government accountability in South Sudan. Finally, studying the experiences and perceptions of taxpayers and tax officials in the context of digital tax systems allows for a comprehensive understanding of the benefits and shortcomings of these approaches in different settings.

Policymakers and tax administrators can utilize these insights to design more effective e-tax systems, address potential



challenges, and streamline tax collection processes (Mkwizu et al., 2020). In conclusion, the adoption of e-tax systems has the potential to significantly improve tax compliance and administration. However, challenges such as lack of internet connectivity, knowledge gaps, and resistance to change need to be addressed to fully realize the benefits of these systems. By examining the successes and shortcomings of e-tax systems in other countries, nations like South Sudan can benefit from exploring strategies to optimize their taxation system and ensure accountability.

## 2. Statement of The Problem

The need for improved efficiency and accountability in taxation systems has heightened the clamor for the modernization of tax systems across the globe, hence the increased adoption of electronic tax administration systems. Electronic tax systems, such as e-tax systems, are computer-based revenue collection platforms that do away with the need for manual registration, filing, and processing of tax returns, refunds, and other tax-related services. Their ultimate goal is to increase revenue collection by reducing costs associated with compliance and minimizing tax leakages. They are designed to reduce physical contact between the tax administrator and the taxpayer to achieve the desired effect of reducing corruption or tax collusion between NRA personnel and the taxpayers. NRA achieved a country-wide rollout of the e-tax system in 2022, with the expectation of leveraging this vital technology to eliminate its revenue deficits. Despite the introduction of the e-tax system, NRA continues to post revenues short of treasury targets (NRA, 2022). This has been attributed to the tax reforms and modernization program that has been undertaken by NRA, hinging on the e-tax system platform which makes it possible for taxpayers to transact with NRA around the clock and in real-time. However, this increase in tax revenue has not been enough to eliminate persistent shortcomings of revenue shortfalls experienced by the NRA. The traditional last-minute rush associated with manual return filing has not been avoided either, as is the case in Juba, with taxpayers still trooping into NRA service centers on deadline days for facilitation. Whereas these studies have sought to show the relationship between the e-tax system and revenue collection, most of them have adopted a descriptive approach by determining factors encouraging or discouraging compliance (Muturi and Kiarie, 2015). In essence, few studies have taken a comparative view of revenue collection in the context of South Sudan before and after the implementation of the e-tax system hence the need for this study.

## 3. Objective of The Study

The overriding objective was to assess the impact of the e-tax system on revenue tax collections and compliance in South Sudan.

The specific objectives of the study were to: Ascertain the impact of the e-tax system on improving tax collections and compliance. Examine the challenges faced by taxpayers in using the e-tax system. Suggest ways of improving the electronic tax system to enhance tax accountability.

## 4. Research Methods

To find out how electronic tax systems affect tax compliance and collection, this study used a cross-sectional case study and descriptive survey design.

The quantitative technique quantified occurrences and looked at variable relationships, while the qualitative approach explored subjective evaluations and opinions. 70 respondents from the NRA (Top Managers, Middle Managers, Other Staff, and Taxpayers) were chosen using a purposive sampling technique. Data was obtained from primary sources like questionnaires and interviews.

An introduction letter from the University of Juba's School of Business and Management Department of Accounting and Finance was given to the researcher and presented to the NRA's Director of Administration to seek their permission was the first step in the study process. Interviews, surveys, and reviews of documentary films were all used as data collection techniques.

## 5. The Literature Review

An electronic tax system is an online platform whereby the taxpayer can access through the Internet all the services offered by a financial authority to register for a Personal Identification Number (PIN), filing of returns, and application for a compliance certificate. Electronic taxation is an antagonistic process for collecting, evaluating, and automating tax-related processes to increase productivity (Fu et al., 2006). According to Night and Bananuka, (2020), an electronic tax system is a system that has been developed to replace the old manual system (Night and Bananuka, 2020). It is a web-enabled and secure application system that provides a fully integrated and automated solution for the administration of domestic taxes. It Enables Taxpayer internet-based PIN registration, returns filing, and payment registration to allow for tax payments and status inquiries with real-time monitoring of accounts.

According to Simuyu and Jagongo (2019), computer-generated returns which are transmitted electronically, are easier to process than paper returns; since the information on the forms doesn't have to be keyed in, number by number, by the Internal Revenue Service (IRS) staff, the computers of the service hence there is less chance of errors.

Electronic transmittal is instantaneous, bypassing the frustrating vagaries of the postal system and the client receives confirmation within a day or two that the return not only was received by the Internal Revenue Service (IRS) but was received accurately. However, electronic tax systems' biggest advantage, from the taxpayers' point of view, is that they shorten the time for refunds from an average of 12 weeks to about 3 weeks. Refunds can even be deposited directly into taxpayers' bank accounts.

As a bonus, several companies that help tax preparers file electronically also let their customers apply for an instant bank loan in the amount of the anticipated IRS check if they are owed a refund. As a result, a client could receive the refund (less bank and preparer fees) within three days of the filing. Different pieces of literature point out ICT use to be extremely beneficial; Aamir et al (2011) attest that the use of ICT enhances timely access to



accurate and relevant information, which is a pre-requisite for good planning, programming, implementation as well as monitoring and evaluation which forms the key component in development. He also shows that ICT use has led to high-level organizational growth; and yet e-tax Case Study (2012), reveals two facts, first; ICT can increase productivity and create more cost-effective output with the same or fewer inputs, and second; the Development of ICT applications for business use alter the approach organizations function and eventually, improve their services as well as products.

In Tanzania for example, according to the Tanzania Revenue Authority (2010), after the introduction of electronic tax systems with the most central being the Integrated Tax Administration System (ITAS), Taxpayer Identification System (TIN), Computerized Motor Vehicle Registration System (CMVRS), Customs Administration System (CAS) and the Tanzania Revenue Authority's Computerized Drivers' License System (CDLS), there are no longer rooms full of clerks manually entering entries in big ledger books as there once were.; instead, there is the widespread use of computers to administer the tax.

Concerning the above, this research was based on how the system of electronic tax has improved/increased revenue collection and performance in various tax bodies. Somasundram (2003). defined tax compliance as the ability and willingness of taxpayers to abide by tax laws, which are influenced by situational elements, the legal system, and ethics at a specific moment and location.

Similarly, tax compliance is also defined by several tax authorities as the ability and willingness of taxpayers to comply with tax laws, declare the correct income each year, and pay the right amount of taxes on time (Internal Revenue Service Act, 2000 Act 592). Maxwell (2013) defines tax compliance as the degree to which the tax-paying community meets the tax obligation as set out in the appropriate legal and regulatory provisions.

He also asserts that taxpayer compliance depends on economic incentives embedded in the tax structure and its effectiveness in detecting and penalizing non-compliance. Alm et al (2011) defined tax compliance as the reporting of all incomes and payment of all taxes by fulfilling the provisions of laws, regulations, and court judgments. According to Sarker (2013), Tax compliance can be defined as the degree to which a taxpayer complies (or fails to comply) with the tax rules of his/her country.

Tax compliance is the degree to which a taxpayer complies with the tax rules of his country. This also means making tax payments and producing and submitting tax returns to the tax authorities on time and in the required formats. The issue of tax compliance has been vibrant in the tax world in Nigeria.

Most citizens have the view that since the government doesn't provide us with the basic amenities needed, why pay tax? This is the most common reaction you get from citizens who evade taxes. Tax evasion cannot be eliminated but can be controlled by the tax authority. A more appropriate definition of compliance could include the degree of willingness to comply with tax laws and administration that can be achieved without immediate threat

or actual application of enforcement activity. Tax compliance can be viewed in terms of tax avoidance and evasion.

These two are distinguished in terms of legality, tax avoidance is legal while tax evasion is illegal. Compliance might therefore be better defined in terms of compliance with the tax laws of the nation (James and Alley, 2002). The process by which the government gathers its tax revenue is known as revenue collection. PAYE, import duties, excise duties, VAT, agency taxes, and excise revenue are among these taxes.

The Agency Taxes include Airport Revenue, Petroleum Development Levy, Road Transit Toll, Sugar Level, Traffic Fees, Petroleum Regulatory Levy, Merchant Shipping fees, and Railway Development Levy. Exchequer Revenue includes Stamp Duty and Import Declaration Fees (Baingana, 2011).

The study adopted the Technology Acceptance Model (TAM) as the theoretical basis for analyzing and understanding the electronic tax system and tax compliance in South Sudan.

The theory suggests that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of Information Technology (IT) are the major determinants of its usage. Perceived usefulness (PU) was defined as a person's belief that using a particular system would enhance his or her job performance and perceived ease of use (PEOU) was defined as a person's belief that using a particular system would be free of effort. Both PU and PEOU jointly influence citizens' intentions.

(Mobile Banking Adoption: Decomposed Theory of Planned Behavior with Perceived Trust, 2020) asserts that the key purpose of the Technology Acceptance Model (TAM) is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions. Behavior Intention (BI) is a measure of the strength of one's intention to perform a specified behavior.

According to intention-based theories, user adoption and usage behavior are determined by the intention to use IT. It is a kind of "self-prediction" or "behavioral expectation", indicated as one of the most accurate predictors available for an individual's future behavior (Mahardika et al.,2020). In predicting usage; the TAM model might be useful within and across organizations for evaluating applications or technologies or to make comparisons between user groups or applications. This theory will be relevant to the study as it emphasizes that using a particular system enhances compliance.

The goal of any tax authority is to establish a system of tax administration that allows for the collection of required taxes at minimum cost. Processing taxpayer returns and accompanying data, entering tax return data into a database, comparing returns to filing requirements, processing tax payments and comparing them to assessments, and issuing assessments and refunds are just a few of the numerous tasks that a tax authority performs. (Geetha and Sekar, 2014). One way to boost a tax authority's efficiency is by expanding its use of information and communication technology. Numerous tasks, including registering taxpayers, filing returns, processing payments, issuing assessments, and cross-referencing information with other parties, can be made easier by such technology.



Electronic filing systems increase the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately. According to Azmi and Bee (2011), returns filed electronically have much lower error rates than paper returns and substantially cut the need to impose penalties and other punitive measures to foster compliance.

Tax officers can deliver assessments and refunds more rapidly because of the more efficient handling that electronic returns provide, and taxpayers are informed about whether their returns have been accepted by the tax authorities. Electronic filing lowers the cost of handling returns allowing administrative resources to be reallocated to other tasks such as auditing, customer services, and tracking non-compliance (Aamir, et al., 2011). The advantages of electronic payment and filing systems also apply to other electronic procedures within the tax authorities.

Better and safer data storage is made possible by electronic filing and payment, which may be leveraged to create risk management systems for enforcement and audits. Automation helps establish a good system for tracking case files, which is essential for effective auditing and increases the speed and quality of data provided to auditors.

Furthermore, software that standardizes and streamlines processes for taxpayers is typically included in e-filing systems to increase compliance (Muita, 2011). Ultimately, by decreasing in-person encounters, well-designed electronic systems can reduce corruption (Jayakumar and Nagalakshmi, 2016). Tax authorities should not touch money directly; this is a widely accepted guideline that ensures efficient tax collection and reduces the potential for corruption. In an ideal world, tax authorities would interact with taxpayers less directly and use less discretion when determining how to handle them (Geetha and Sekar, 2014).

Electronic tax filing is also easy, flexible, and convenient for taxpayers. Returns can be electronically filed from a taxpayer's house, place of employment, library, banking institution, tax professional's office, and even retail establishments like malls and supermarkets. Online tax filing and payment are possible from any location with the help of an integrated e-filing and e-payment system.

Singapore was one of the first economies to adopt electronic systems in its public administration. The Inland Revenue Authority of Singapore, which created an integrated, computerized tax administration system, took over the Inland Revenue Department in 1992.

Electronic billing machine an electric typewriter, a calculator (or, in more recent accounting machines, a minicomputer), a control device that has been configured, and a device for recording data on an auxiliary carrier make up a billing machine. Billing devices find application in computer consoles, banks, huge warehouses, building and assembly-installation directorates, and book-keeping divisions of commercial and industrial businesses. The use of such machines substantially expedites the processing of accounting and financial documentation.

As automated control systems have evolved, billing machines have been used as input terminals for these systems (Jayakumar and Nagalakshmi, 2016). Monetary transactions at banks, retail stores, grocery stores, healthcare institutes, and other places have been made easier with the use of a variety of machines. Billing and money counting are two important functions involved in these transactions (Geetha and Sekar, 2014).

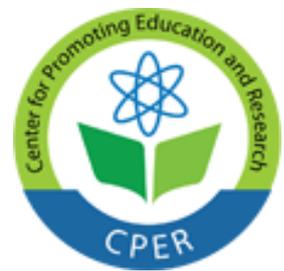
In a cash counting machine, the lot containing coins or currency notes is placed in a hopper (Aamir, et al., 2011). The machine contains electronic components like rollers and sensors that count every coin or note in the process. Many machines are pre-programmed to perform the designated sets of functions. One of the most important advantages of a billing and currency counting machine is that it saves a lot of time and manual effort. Productivity can be easily increased with these machines. A billing machine is useful for calculating the totals of different financial transactions and for printing bills more quickly and precisely. However, their advantages are not limited to those already mentioned (Geetha and Sekar, 2014). Depending upon the types of features integrated with them, these machines can detect fake and counterfeit currency notes. In addition, many models are designed to find old and damaged currency notes so that they can be separated or replaced according to the users' requirements.

Going further, some billing and cash-counting machines can be used to count notes with different denominations separately. Electronic Billing Machine tools have helped cut down time spent screening books of accounts. Before the invention of Electronic Billing Machines, auditors used to spend hours investigating and going over massive documentation, but with the EBM, audits are easily conducted by using Electronic Billing Machines. Many tax bodies are now able to catch tax evaders with less effort.

The same technology is used in many countries to combat tax evasion because every registered machine records all transactions and indicates Value Added Taxes expected to be remitted to government coffers. The use of Electronic Billing Machines discourages some taxpayers who were fond of keeping two receipt books or non-issuing tax receipts to clients, irrespective of the quantities bought, which encouraged tax evasion (Azmi and Bee, 2011).

The best way to use EBMs to improve VAT compliance is to introduce them alongside two complementary interventions. Firstly, there is a need for interventions that reinforce the issuing of EBM receipts where non-compliance is identified (receipt audits). These also provide data to establish true patterns of sales, which is used by the second intervention type.

This second intervention uses targeted data analytics that automatically identifies when a firm is engaged in 'irregular' or 'suspicious' behavior (issuing much fewer receipts than usual, issuing receipts without buyer-firm corroboration, or misclassifying items). The most powerful way in which EBMs can reinforce voluntary VAT compliance is by taking both approaches jointly; a data-driven approach to 'spot' irregular patterns and automatically 'remind' EBM users of non-complying behavior (Mascagni, et al., 2021).



In Africa (and many developing countries of the world), it can be argued that the journey towards mobile money has followed a “customer-centric” evolution path as opposed to a “technology-centric” model of innovation observed in developed nations (Geetha and Sekar, 2014). In these regions, there has been a rapidly growing internet penetration rate and mobile cellular network access within the last decade, trends that have been successfully harnessed in addressing existing problems. About 90% of the mobile customer base in Africa purchases prepaid card vouchers using cash, from retail outlets to top up their mobile device call credit. MNOs manage their own retail locations and grant licenses to independent dealers so they can offer mobile recharge vouchers to final consumers. (Simuyu, and Jagongo, 2019). Recharge vouchers were a common way for students to request payment for goods or services in 2008, and they were even kept in circulation as a kind of saved cash value.

It was also common to receive and gift recharge vouchers as birthday presents and use them for the fulfillment of a horde of social obligations (Jayakumar and Nagalakshmi, 2016). Another use case that quickly became popular was the use of recharge vouchers as a medium to transfer value over huge geographical distances. Concerned customers, or lead users in this instance, soon learned that by buying these vouchers and texting the numbers via short messaging service (SMS), they could transfer “money” (recharge vouchers) to loved ones in far-off communities for no additional cost.

Their loved ones could either use the recharge vouchers themselves or exchange them for cash after finding an exchange partner in need (Auyat, 2013). This provided value as it addressed several problems especially peculiar to the developing nations. First, it provided an expense-free method to exchange value for both the banked and unbanked. Next, it addressed issues related to infrastructure and transfer over wide geographic distances effectively enabling location-free banking (Laukkanen and Lauronen, 2015). Furthermore, it was accessible to almost anyone and provided all of this with near-instant confirmation SMS message delivery. No alternative method of value exchange provided comparative qualities. Available options were costly, risky, or inaccessible.

**Compliance** Sarker (2013) defines tax compliance as the extent to which a taxpayer complies or does not comply with the tax laws in his nation.

He continued by saying that encouraging voluntary tax compliance using all available means, including fines, is the consensus regarding the purpose of an effective tax administration. He continued by saying that encouraging voluntary tax compliance using all available means, including fines, is the consensus regarding the purpose of an effective tax administration.

Tax compliance has been defined by the Harvard Law School (2000) as paying taxes on time and timely reporting correct tax information. Thus, paying the correct amount of taxes (but not more) at the appropriate location and time is tax compliance. Where right means that the economic substance of the transaction

undertaken coincides with the place and form in which they are reported for tax purposes.

Filing, reporting, and payment are the three multifaceted components that comprise tax compliance, according to Sarker (2013). Carroll (2007) claims that tax compliance is the provision of tax information at the appropriate time and ensuring returns accurately report tax liability. Furthermore, he says that the value of the taxpayer's own time and resources, as well as any money paid out of pocket to tax preparers and other experts, is invested in tax compliance that is, in making sure the laws are followed.

Sarker (2013) also asserts that compliance is still low because tax authorities have not sufficiently addressed the key shortfalls in the administration systems which include unregistered taxpayers, inadequate clear tax literature, tax evaders, and delinquent taxpayers. Tax compliance can either be through voluntary tax compliance or involuntary tax compliance.

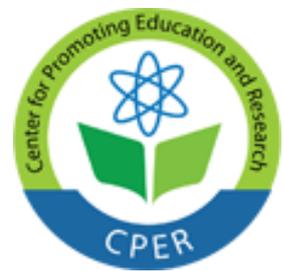
Voluntary tax compliance involves obeying the tax laws without any state enforcement actions that lead to maximizing revenues because administration costs are low in both the economic and the psychic sense. Taxpayers have minimal resentment when they part with their money, and the government spends little time or money collecting taxes (Erich, 2007).

According to the neo-classical economic view, people obey tax laws when it is in their interest to do so. Compliance results from the individual's rational choice aimed at maximizing individual outcomes. Compliance builds an atmosphere of trust and cooperation because a person feels that others are accounting reciprocally.

According to Sarker (2013), the major influences on tax compliance are age, gender, and income levels. The low level of tax compliance ratio could be a result of low intentions to pay taxes, this is because many traders believe that the tax compliance rules give them little time to arrange payment and this increases the temptation to evade, the Daily Monitor July 31st (2003). It further said that the low level could also be attributed to traders' attitude towards the Uganda Revenue Authority (URA). Many traders have a negative attitude towards the Uganda Revenue Authority (URA). According to Jayakumar and Nagalakshmi (2016), a well-thought-out electronic system might lessen corruption by minimizing in-person encounters.

Tax authorities should not touch money directly; this is a widely accepted guideline that ensures efficient tax collection and reduces the potential for corruption. Tax officials should ideally interact with taxpayers less directly and have less discretion when determining how to handle them (Geetha and Sekar, 2014). E-filing is also easy, flexible, and convenient for taxpayers.

Returns can be electronically filed from a taxpayer's house, place of employment, library, banking institution, tax professional's office, and even retail establishments like malls and supermarkets. Online tax filing and payment are possible from any location with an integrated e-filing and e-payment system. Mikesell and Birskyte (2017) conducted a study titled “Influencing Tax Compliance in Small-Medium Enterprises



(SMEs) through the use of ICTs” and argued that every nation's economy is significantly influenced by its ability to collect taxes.

The government can fund its operations, which include building infrastructure, providing services, and handling administrative tasks since its revenue streams are sufficient. The study aimed to show how e-transparent services address the challenge of voluntary tax compliance by SMEs in the Republic of Tanzania. The study observed the following factors to influence voluntary compliance: Awareness of tax laws, business experience, the integrity of employees, low frequency of visitation by tax officers, and training needs.

Recommendations read that the revenue authority must use relevant ICT tools to positively promote these factors; as a result, the position of taxpayers to voluntarily file their tax returns will be enhanced. Tax officers can perform transactions more quickly and precisely thanks to e-filing technologies, which improve the quality and amount of information at their disposal (Azmi and Bee, 2011).

Electronically submitted returns have significantly lower error rates than paper returns, which reduces the need for fines and other disciplinary actions to encourage compliance. Tax officers can deliver assessments and refunds more rapidly because of the more efficient handling that electronic returns provide, and taxpayers can immediately find out if their returns have been accepted by the tax authorities.

Because e-filing reduces return processing costs, administrative resources can be better used for customer support, auditing, and non-compliance tracking (Geetha and Sekar, 2014). The advantages of electronic payment and filing systems also apply to other electronic procedures within the tax authorities. Better, safer data storage is made possible by electronic filing and payment, which can be leveraged to set up a risk management system for enforcement and audits.

Automation speeds up and improves the quality of data delivered to auditors while assisting in the establishment of a sound case file management system a prerequisite for efficient auditing. Furthermore, software that standardizes and streamlines procedures for taxpayers is typically included in e-filing systems to increase compliance (Gupta, 2012).

E-payments are intended to assist banks, businesses, and individual consumers in mitigating or doing away with certain issues that arise throughout the settlement and payment process. Consumers do not need to physically visit the bank's location to pay their bills (Pariwat and Hataiseere, 2014). They may also have access to their account information and even transfer money to other accounts in the comfort of their homes.

The adoption of electronic payments is essential to guaranteeing maximum revenue collection. In today's modern world, there are numerous ICT-based revenue collection applications accessible for usage. These are simply known as revenue collection-integrated Electronic Payment (E-payment) systems (Ndunda, et al., 2015).

The E-payment system is accessible online through Point of Sale (PoS) terminal devices and physical agents (such as mobile

phones, debit cards, agents, and mobile money). The purpose of electronic payments is to assist businesses in mitigating or eliminating corruption, which is a common issue in the settlement and payment process. This is achieved by enabling customers to settle their bills remotely, without physically visiting the company's location.

E-tax systems often require taxpayers to input their financial and personal information accurately. However, mistakes in data entry can occur, leading to errors in tax returns or payment information. Taxpayers may find it challenging to ensure the accuracy of their input, especially if the system does not provide adequate error-checking mechanisms or fails to flag potential mistakes (Kabafunzaki, 2010).

In Uganda (Akello, 2014), reported that there are challenges such as intermittent power supply and Internet outages but says the tax body has made contingency plans to ensure that the system is operational 24/7. First, the e-Tax is hosted on a central server at their Kampala headquarters, which means that it's not affected by power or network outages even when power or the Internet is off in some parts of the country. The electronic filing process still confuses a lot of people because the web portal has many features and yet most people cannot understand some tax terms. Nakitende (2019) explains that as with any new system, there have been numerous teething problems with the electronic system. First, there are two concurrent tax systems, manual and e-tax systems, without either system recognizing the other. Demand emails from the Integrated Tax Management System are also being sent to taxpayers. There will always be disparities in the records of taxpayers as a result, particularly about filing and paying taxes. For example, under the current configuration, the e-tax system will not acknowledge a manual tax payment made by a taxpayer. Instead, the system automatically calculates penalties and interest on the perceived “missed” tax payments thereby leading to potential disputes between the URA and the taxpayer. Second, the e-tax system lacks historical records of taxpayers. Its record keeping is a “going forward” type in that it only stores tax records of taxpayers from the time of registering for e-Tax onwards (Nakitende, 2019).

Taxpayers may have concerns about the security of their personal and financial information when using e-tax systems. Fear of data breaches, identity theft, or unauthorized access can discourage taxpayers from using online platforms for tax-related activities. Addressing and ensuring robust security measures within e-tax systems is crucial to instilling trust among taxpayers (Tan and Foo, 2015). According to Tan and Foo (2015), this risk perception could significantly influence the taxpayer's or users' intention to use it. The most widely known risk that everyone refers to is the lack of internet security. Another risk they talk about is the possibility that confidential personal information could be intercepted and stolen by fraudsters during transmission.

e-tax platforms may experience technical glitches or downtime, impacting taxpayers' ability to access the system or complete their transactions. System failures, slow response times, or website crashes can cause frustration and delays, potentially



hindering taxpayers from meeting tax deadlines or making timely payments (Kayaga, 2010).

The next challenge is related to limited cost savings. According to Coolidge and Yilmaz (2014), many in the international donor community supporting tax reforms had assumed that e-filing would reduce tax compliance costs for taxpayers, however, their survey evidence from investment climate work conducted by the World Bank Group shows that this is not necessarily the case. Many acceptance theories, like the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM), according to Rocker (2018), presuppose that taxpayers may decide which technologies to adopt based on personal cost-benefit analyses.

Taxpayers may require guidance or assistance while using e-tax systems, particularly if they encounter technical issues, have questions about specific tax situations, or need clarification on certain processes. However, the availability and quality of support services provided by tax authorities may vary, leaving some taxpayers without adequate assistance when needed (Kayaga, 2010). Therefore, for such taxpayers trying to get help on a complicated tax question from a website help desk may not be nearly as useful as getting help from an in-person tax professional.

Some people would generally not be interested in e-filing because of a lack of computer knowledge. This was confirmed by Kevin (2013), with references to some of the lawyers in Florida who did not want to use e-filing in their law firms due to a lack of basic computer knowledge. It also confirms that e-filing is not only limited to use by tax authorities but has been adopted by the judiciary to make document management simple and quicker for lawyers. E-tax systems can sometimes be complex, with multiple steps and requirements that may confuse or overwhelm taxpayers. Complicated user interfaces, unclear instructions, or non-intuitive design can hinder the user experience and make it difficult for taxpayers to navigate through the system smoothly (Mikesell and Birskyte, 2017). Some taxpayers may face difficulties in navigating and using the e-tax system due to limited technological skills or lack of access to reliable internet connections. Not everyone may be comfortable with using digital platforms, and older taxpayers or those with limited computer literacy may find it challenging to adapt to the online environment (Azmi and Bee,

2011). Addressing these challenges requires proactive measures from tax authorities, such as providing user-friendly interfaces, clear instructions, robust error-checking mechanisms, accessible support channels, and ensuring data security. Additionally, offering alternative methods for those who face technological barriers or prefer traditional approaches can help bridge the gap and ensure inclusivity in tax compliance.

**The Ways of Improving Electronic Tax System to Enhance Tax Compliance**

To enhance tax accountability through e-tax systems, several improvements can be implemented. Here are some suggestions:

The use of ICTs for self-assessment addresses the challenge of the integrity of employees and promotes voluntary compliance. Training is essential because it provides clients with the skills necessary to raise their attitude toward voluntarily complying with taxation systems.

In the Tanzanian Revenue Authority, employees organize seminars to educate stakeholders about the benefits of voluntary tax compliance (Simuyu. and Jagongo, 2019). Kevin (2013) said that lawyers feared using e-filing due to a lack of computer knowledge and the best way to reduce anxiety is to gain comfort with the use of e-filing systems and develop a strong network of tech-savvy assistants or peers. This comfort level can be developed with education and support.

Furthermore, he encourages users to take online training that is provided by the authorities. A study by Wahab (2012) also recommended customer education and widespread deployment of e-payment point-of-sale terminals to merchants. Decentralized ICT-based tax collecting systems and sub-county offices were suggested by Nyongesa's (2014) report as differentiating techniques for Mombasa County's revenue collection responsibility.

Other tactics included remitting cash to the closest bank rather than the cash offices, raising tax rates, expanding the tax base, giving county government agencies more control over the tax base, and strengthening cash management procedures. Nonetheless, a significant increase in revenue collection would result from the automation of the revenue collection system.

**DATA ANALYSIS AND PRESENTATION OF THE FINDINGS**

**Table 1: Impact of the E-Tax Systems on Improving Tax Collections and Compliance**

	SD		D		NS		A		SA	
	F	%	F	%	F	%	F	%	F	5
The e-tax system has made it easier for taxpayers to file their taxes	11	15.7	7	10	7	10	24	34.3	21	30
The e-tax has improved the transparency of tax information	4	5.7	12	17.1	11	15.7	19	27.1	24	34.3
The e-tax system has resulted in more accurate tax filings and payments	6	8.6	10	14.3	14	20	23	32.9	17	24.3
The e-tax system has led to a significant increase in tax compliance among taxpayers	5	7.1	13	18.6	11	15.7	29	41.4	12	17.1
The e-tax system has significantly reduced tax evasion incidents	7	10	13	18.6	18	25.7	13	18.6	19	27.1

Source: Field Data, 2023



In the frequency table above, 15.7% of the respondents, disagreed 10% of the respondents, were not sure 10% of the respondents, agreed has the majority 34.3% strongly agreed 30% of the respondents said the e-tax system has made it easier for taxpayers to file their taxes. The statement that e-tax has improved the transparency of tax information strongly disagreed has 5.7% of the respondents, disagreed has 17.1% of the respondents, not sure 15.7% of the respondents, agreed has 27.1% of respondents, and strongly agreed has 34.3% of the respondents. On the statement, that the e-tax system has resulted in more accurate tax filings and payments strongly disagreed 8.6% of the respondents, disagreed by 14.3% of the respondents, not sure by 20% of the respondents, agreed 32.9% which has the majority of the respondents and strongly agreed has 24.3% of the respondents. The suggestion that the e-tax system has led to a significant increase in tax compliance among taxpayers shows that strongly

disagreed with 7.1% of the respondents, disagreed with 18.6% of the respondents, not 15.7% of respondents, agreed with 41.4% of the respondents and strongly agreed has 17.1% of the respondents. The e-tax system has significantly reduced tax evasion incidents shows that strongly disagree has 10% of the respondents, disagree has 18.6% of the respondents, not sure has 25.7% of the respondents, disagree has 18.6% of the respondents while strongly agree has 27.1% of the respondents. This implies that there is an impact of e-tax systems on improving tax collection and compliance as respondents stated that the e-tax system has made it easier for taxpayers to file their taxes, the e-tax has improved the transparency of tax information, the e-tax system has led to a significant increase in tax compliance among taxpayers and the e-tax system has resulted in more accurate tax filings and payments.

**3.4. Challenges Faced by Taxpayers in Using the E-Tax Systems**

**Table 2: Challenges Faced by Taxpayers in Using the E-tax Systems**

Statement	SD		D		NS		A		SA	
	F	%	F	%	F	%	F	%	F	5
The e-tax system has a steep learning curve, making it difficult to use	13	18.6	11	15.7	14	20	15	21.4	17	24.3
Users have experienced technical issues while using the e-tax system	7	10	5	7.1	9	12.9	23	32.9	26	37.1
The e-tax system lacks adequate support for taxpayers facing difficulties	12	17.1	7	10	16	22.9	13	18.6	22	31.4
Users are concerned about the security and privacy of the information in the e-tax system	6	8.6	7	10	20	28.6	19	27.1	18	25.7
The e-tax system is not user-friendly and has complicated navigation	14	20	15	21.4	9	12.9	14	20	18	25.7

Source: Field Data, 2023.

The researcher sought the opinions of respondents on the challenges faced by taxpayers in using e-tax systems. Table 7 above, shows that the e-tax systems have a steep learning curve, making it difficult to use a challenge faced by taxpayers in using the e-tax systems, strongly disagreed 18.6% of the respondents, disagreed by 15.7% of the respondents, not sure with 20% of the respondents, agreed by 21.4% of the respondents and strongly agreed has 24.3% of the respondents. Strongly disagreed by 10% of the respondents, disagreed by 7.1% of the respondents, were not sure by 12.9% of the respondents, agreed by 32.9% of the respondents, and strongly agreed by 37.1% of respondents that users have experienced technical issues while using the e-tax systems. The e-tax systems lack adequate support for taxpayers facing difficulties as a challenge faced by taxpayers in using e-tax systems, respondents strongly disagreed with 17.1% of the respondents, disagreed by 10% of the respondents, not sure with 22.9% of the respondents, agreed with 18.6% of the respondents and strongly agreed 31.4% of respondents. Respondents strongly

disagreed with 8.6% of the respondents, disagreed with 10% of the respondents, and were not sure 28.6% of respondents, agreed 27.1% of respondents, and strongly agreed 25.7% of the respondents that a challenge faced by taxpayers in using the e-tax systems is users are concerned about the security and privacy of the information in the e-tax systems. The e-tax system is not user-friendly and has complicated navigation as a challenge faced by taxpayers in using the e-tax systems, respondents strongly disagreed 20% of the respondents, disagreed by 21.4% of the respondents, were not sure about 12.9% of the respondents, agreed 20% of the respondents and strongly agreed 25.7% of the respondents.

This means that there are challenges faced by taxpayers in using the e-tax systems as respondents evaluated that users have experienced technical issues while using the e-tax systems, users are concerned about the security and privacy of the information in the e-tax systems and the e-tax systems lack adequate support for taxpayers facing difficulties.

**Table 3: Ways of Improving the Electronic Tax Systems to Enhance Tax Accountability**

Statement	SD		D		NS		A		SA	
	F	%	F	%	F	%	F	%	F	5
Introducing online tutorials and training resources would be helpful for taxpayers using the e-tax system	14	20	3	4.3	7	10	10	14.3	36	51.4



Automated reminders and notifications would benefit taxpayers using the e-tax system	7	10	5	7.1	10	14.3	18	25.7	30	42.9
Improving the user interface and navigation of the e-tax system would make it easier to use	7	10	3	4.3	10	14.3	20	28.6	30	42.9
Enhanced error-checking features should be integrated into the e-tax system to reduce inaccuracies	5	7.1	5	7.1	11	15.7	20	28.6	29	41.4
The e-tax system should be enhanced through dedicated support channels, such as helplines, email support, or live chats	6	8.6	6	8.6	9	12.9	13	18.6	36	51.4

Source: Field Data, 2023

The study sought the responses of respondents to suggest ways of improving the electronic tax systems to enhance tax accountability. In Table 8, respondents show that introducing online tutorials and training resources would be helpful for taxpayers using the e-tax system as a way of improving the Electronic Tax Systems to enhance Tax Accountability, strongly disagreed by 20% of the respondents, disagreed with 4.3% of the respondents, were not sure by 10% of the respondents, agreed with 14.3% of the respondents and strongly agreed by the highest percentage of respondents with 51.4%. As a way of improving the Electronic Tax Systems to enhance Tax Accountability, respondents stated that Automated reminders and notifications would benefit taxpayers using the e-tax systems, strongly disagreed by 10% of the respondents, disagreed with 7.1% of the respondents, were not sure by 14.3% of the respondents, agreed with 25.7% of the respondents and strongly agreed by 42.9% of the respondents. Respondents strongly disagreed with 10% of the respondents, disagreed with 4.3% of the respondents, were not sure with 14.3% of the respondents, agreed with 28.6% of the respondents, and strongly agreed with 42.9% of the respondents that improving the user interface and navigation of the e-tax systems would make it easier to use as a way of improving the Electronic Tax Systems to enhance Tax Accountability. Respondents stated that Enhanced error-checking features should be integrated into the e-tax systems to reduce inaccuracies as a way of improving the Electronic Tax Systems to enhance Tax Accountability, strongly disagreed with 7.1% of the respondents, disagreed by 7.1% of the respondents, were not sure with 15.7% of the respondents, agreed by 28.6% of the respondents and strongly agreed with 41.4% of the respondents. The e-tax systems should be enhanced through dedicated support channels, such as helplines, email support, or live chats as a way of improving the Electronic Tax Systems to enhance Tax Accountability, respondents show that strongly disagreed with 8.6% of the respondents, disagreed 8.6% of the respondents, were not sure with 12.9% of the respondents, agreed by 18.6% of the respondents and strongly agreed with 51.4% of the respondents. This implies that the ways of improving the electronic tax systems to enhance tax accountability as suggested by respondents include improving the user interface and

navigation of the e-tax system would make it easier to use, enhanced error-checking features should be integrated into the e-tax system to reduce inaccuracies and the e-tax system should be enhanced through dedicated support channels, such as helplines, email support, or live chats.

## CONCLUSIONS AND RECOMMENDATIONS

### 5.1. Conclusions

The study concluded that the e-tax systems have had impacts on improved tax compliance and accountability since their introduction. The e-tax systems have made it easier for taxpayers to file their taxes, the e-tax systems have improved the transparency of tax information, the e-tax systems have led to a significant increase in tax compliance among taxpayers and The e-tax system has resulted in more accurate tax filings and payments. Users have experienced technical issues while using the e-tax systems, Users are concerned about the security and privacy of the information in the e-tax systems and the e-tax systems lack adequate support for taxpayers facing difficulties.

Improve the user interface and navigation of the e-tax system would make it easier to use, enhanced error-checking features should be integrated into the e-tax systems to reduce inaccuracies and the e-tax system should be enhanced through dedicated support channels, such as helplines, email support, or live chats.

### 5.2. Recommendations

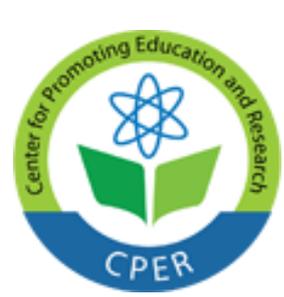
The researchers recommended that the National Revenue Authority needs to automate its revenue collection, by partnering with commercial banks and mobile phone networks whereby the taxpayers will be given the option of paying fees through mobile money or branded credit cards via a new revenue collection system.

The government should choose to encourage the use of electronic methods for many aspects of the economy. This may not only benefit the tax systems but also provide an incentive to move to more efficient methods for private enterprises. One particular area is e-invoicing. A standard electronic invoice format, for example, can reduce administrative costs for all companies using it. But without government involvement, it is hard to get momentum behind a particular format.



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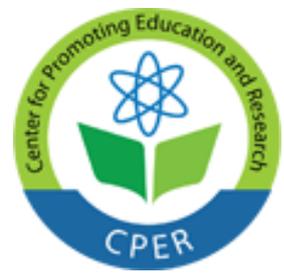
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