***Journal of Management Sciences, Innovation, and Technology (JMSIT)***

***https://journals.cut.ac.zw/index.php/JMSIT***

# Building Resilience in Tax Administration: A Comprehensive Approach to Cybercrime-Free E-Filing Systems.

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## ABSTRACT

*This research assesses the performance and cyber-resilience of Zimbabwe's digital tax collection infrastructure, with a focus on the Zimbabwe Revenue Authority (ZIMRA)'s e-filing platform, using the Bookmakers and Punters Tax (BPT) as a case study. The aim was to determine the robustness of the system against web threats, value levels of tax authorities' trust and knowledge in issues of taxation in the digital world, and devise actionable recommendations to enhance system security and user engagement. At the core of the investigation were intersectionalities between cybersecurity resilience, taxpayer digital literacy, and trust in government-run digital environments. The study employs the Technology Acceptance Model (TAM), Trust Theory, and Social Exchange Theory (SET) to conceptualize perceived security, usability, and mutual expectations between citizens and tax authorities as predictors of voluntary compliance and long-term usage of electronic tax systems (Davis, 2021; Rousseau et al., 2020; Cropanzano & Mitchell, 2022). A quantitative research design was employed with a combination of descriptive and inferential designs. Data were gathered through standardized questionnaires filled in by a purposive sample of 100 participants, i.e., gamblers, betting operators, and ZIMRA officials—selected due to their direct and frequent engagement with the BPT e-filing system. They played a critical role in the comprehension of the lived experiences, operational difficulties, and trust relationships at the frontline of digital tax compliance. The questionnaire included closed and open-ended questions, and a 5-point Likert scale was employed to measure perceptions of fairness, security, digital literacy, and trust in institutions. Descriptive statistics provided descriptions of respondent characteristics and patterns of attitudes, whereas inferential techniques, including correlation and regression analysis, explored the interdependencies among cybersecurity awareness, user trust, and system utilization. Results showed that 45% of respondents believed the e-filing system to be secure while 60% had previously been aware of cyberattacks on the tax system. Illiteracy in the contemporary era and doubt about ZIMRA's data protection methods emerged to be key hindrances to system use and compliance. Based on these insights, the study recommends the implementation of an integrated cybersecurity enhancement framework comprising public awareness campaigns, participatory system design, transparent data handling practices, and interactive feedback loops. These strategies are essential for cultivating trust, reducing systemic cyber-vulnerability, and fostering durable compliance in Zimbabwe's increasingly digital tax environment.*

## Keywords and Definitions

**Tax Administration:** The structured process through which a government collects, manages, and raises taxes, at times combining legislative, institutional, and technical aspects (OECD, 2021).

**E-Filing Systems:** Computerized systems that allow taxpayers to file returns, pay tax, and communicate with tax authorities through the web; valued for efficiency, speed, and reduced administrative costs (UNCTAD, 2022).

**Cybercrime:** Illegal activities committed by means of electronic systems, including data theft, identity theft, and ransomware attacks, that breach confidentiality and integrity of electronic platforms (ITU, 2023).

**ZIMRA:** The Zimbabwe Revenue Authority, charged with administering and enforcing national laws on taxation and championing digital reforms that seek to transform tax collection (ZIMRA, 2022).

**Taxpayer Trust:** Public belief that tax authorities are honest, competent, and protectors of personal information; crucial to voluntary compliance (Fjeldstad & Heggstad, 2020).

**Digital Literacy:** Ability of citizens to use digital equipment, platforms, and software effectively; low literacy is one of the biggest barriers to successful e-governance (UNESCO, 2021).

**Bookmakers and Punters Tax (BPT):** An e-tax regime for gamblers and betting operators in Zimbabwe, introduced to widen the tax base and balance revenue collection with emerging sectors (Mambo, 2023).

## Introduction

Globally, tax administration digitalization has emerged as a vital support column for improved revenue collection, reduced compliance costs, and fraud avoidance. Estonia, Singapore, and South Korea have been at the forefront in implementing e-filing systems with real-time data integration as well as cybersecurity steps, achieving over 90% compliance rates (OECD, 2021; PwC, 2022). The International Monetary Fund (IMF, 2021) holds the view that these digital reforms restrain corruption, limit evasion, and enhance audit effectiveness. Weaknesses do exist. For instance, in 2020, America's IRS encountered a data breach impacting more than 100,000 taxpayer returns, highlighting a necessity for robust cyber defensive practices in combination with innovation (GAO, 2022; Anderson & Moore, 2021).

The poor institutional capacity, weak regulatory enforcement, and absence of an advanced IT infrastructure emerging markets amplify cybercrime risks (UNCTAD, 2020; Mugarura & Lutalo, 2019). Certain African countries are advancing aggressively towards tax digitization, such as Rwanda, Nigeria, and Kenya. Cybercrime remains a hanging threat despite such advances. Kenyan's e-filing portal was also subjected to a ransomware attack in 2022 that caused havoc on its services and further undermined public confidence (Cybersecurity Africa, 2022). In Nigeria, there has been inadequate incorporation of tax portals and bank APIs, thereby offering loopholes for tax fraud and impersonation (Umar & Ibrahim, 2021). These cases reinforce the fact that a multi-layered cyber-security approach is essential when adopting e-filing systems in low-income environments.

Zimbabwe is digitally transforming its revenue authority, ZIMRA, under a whole-of-the-government economic reform initiative. The operation of the Bookmakers and Punters Tax (BPT) in a digitalized environment is a testament to progress and risk. Even though e-filing simplifies taxation, there is widespread concern about data security, fairness, and public engagement (ZIMRA, 2022; Mambo, 2023). More and more, users especially those informal in nature report being unaware of how the digital system operates and worry that their financial data are being mishandled or leaked (Chikwati, 2023; Dube, 2023). Further, researchers have highlighted that institutional trust, perceived fairness, and an informed citizenry are the foundations on which effective digital tax tool adoption relies (Bird & Zolt, 2005; Fjeldstad & Heggstad, 2012; Maposa et al., 2021).

## The Emergence of Digital Taxation Systems

The development of digital taxation systems has been facilitated by global trends in digitalization and the need for better mechanisms for collecting taxes. The OECD (2021) explains that digital tax systems have emerged as important tools in the war against tax evasion, improving the efficiency of tax collection procedures while reducing administrative costs. According to PwC (2022), over 90% of the globe's high-income economies have already adopted some form of e-filing system that has established an example to be replicated for other countries like Zimbabwe. In countries like Estonia, use of e-platforms of tax administration contributed to an increase in the tax compliance rate by taxpayer from 65% to 93% within a span of just twenty years (OECD, 2021).

Cybercrime has emerged as a significant challenge as governments make efforts to digitize tax authorities. An INTERPOL (2020) report highlighted that cybercrime in the tax sector increased by 30% annually, with a rapid rise in the manipulation of e-filing platforms and identity theft. In the United States, for example, cybercriminals employed tax systems to steal millions in refunds with the help of data breaches and phishing (GAO, 2022). In the European Union, similarly, according to a survey conducted by Eurostat (2021), over 60% of people interviewed were concerned about the safety of their personal data in online government services, an indication that robust cybersecurity measures should be present in any digital tax reform.

**Addressing Cybersecurity in Digital Taxation**

In Africa, the trend towards digital taxation is on the rise, with countries like Kenya, Nigeria, and Rwanda leading the way in establishing e-filing systems. However, the threat of cybercrime still exists. A 2021 Mugarura and Lutalo (2019) research established that the lack of adequate cybersecurity infrastructure in most African nations, including Zimbabwe, leaves digital tax systems open to cybercriminals. The study emphasized that weak regulatory systems and low investment in IT infrastructure were some of the factors contributing to such vulnerabilities.

Rwanda's efforts to digitize tax collection have been effective in increasing compliance rates, but the country also faced cybersecurity attacks. Rwanda's tax authority was hit by a cyberattack in 2020 that compromised sensitive taxpayer data (UNCTAD, 2020). The attack demonstrated that even though countries have come a long way in terms of digital taxation, cybersecurity threats are still a significant hindrance. Furthermore, the application of digital tax systems in the majority of African countries has a tendency to occur before the public becomes aware of such technologies. In Zimbabwe, as in other Southern African countries, informal economy workers and the public are not digitally literate, and therefore cybercrime risks are more serious (Maposa et al., 2021).

**Cybercrime and the Risk to Zimbabwe's Tax Administration**

Cybercrime presents a significant threat to Zimbabwe's tax administration, particularly with the implementation of e-filing systems under ZIMRA. The Bookmakers and Punters Tax (BPT), introduced in a bid to modernize Zimbabwe's tax system, faces challenges related to cybersecurity, as evidenced by data breaches and public distrust. As Mambo (2023) testifies, taxpayers increasingly believe that digital tax platforms are susceptible to cyber-attacks, and that diminishes their confidence in utilizing such platforms. Lack of proper encryption, multi-factor authentication, and other advanced security mechanisms leaves the system open to attack by hackers.

The platforms are also tainted with poor taxpayer awareness, as documented by Chikwati (2023). The majority of users—especially in the informal economy—do not understand how to use digital platforms effectively, and ignorance and fraud potential abound. Trust is also eroded by the beliefs that the digital taxation system operates in the government's interest rather than in the taxpayer's interest (Dube, 2023). These issues underline the need for a

comprehensive cybersecurity strategy, one that includes encryption technologies, public education, and active stakeholder participation to protect both taxpayer data and the integrity of the tax system.

## Zimbabwe's Struggle with Digital Taxation and Cybersecurity

Zimbabwe has made strides toward digitizing its tax system, with the implementation of e-filing systems through ZIMRA. Nevertheless, the nation continues to struggle with some important challenges concerning cybersecurity, public knowledge, and uptake of systems. ZIMRA (2022) indicates that, although the tax collection process has been tried to be computerized, there are still a number of taxpayers who are afraid of using digital platforms because of fear of data insecurity and lack of fairness. The Bookmakers and Punters Tax (BPT), a new digital tax initiative, has been received with a lot of opposition, particularly from illegal gamblers who are not familiar with e-filing systems (Dube, 2023). This also highlights the need for increased public education on the benefits of digital tax systems and their safeguarding of taxpayer information.

In addition, the informal economy, which constitutes over 60% of Zimbabwe's GDP (ZIMSTAT, 2022), remains largely outside the reach of digital tax mechanisms. Many transactions in sectors like gambling and betting are still conducted in cash, bypassing formal tax structures. This presents a significant challenge to ZIMRA, since digital taxation programs like the BPT aim to formalize informal economic activities without adequately considering the needs and interests of informal sector workers (Chipeta, 2022). The success of digital tax schemes will depend on how effectively these challenges are addressed, through technical enhancement as well as cooperative policy-formulation.

## Problem Statement

Despite Zimbabwe's efforts to modernize its tax system through digitalization including the introduction of measures such as the Bookmakers and Punters Tax the success of these reforms remains constrained by persistent challenges in cybersecurity, public trust, and inclusive engagement. The digital taxation system lacks robust protection and is vulnerable to data breaches, manipulation, and cyberattacks, as evident from increasing regional threats and the absence of an adequate national cybersecurity framework (Gwebu & Wang, 2023; UNCTAD, 2023). Simultaneously, there has been insufficient investment in taxpayer education and stakeholder communication, especially among actors in the informal sector who form a critical part of Zimbabwe's economic activity (ZIMRA, 2022; Mhlanga & Nyathi, 2024). This gap has encouraged digital illiteracy, fear of being spied upon, and mistrust of digital systems, duplicating the same findings in Kenya and Nigeria where poor public sensitization deterred uptake (Mwangi & Awuor, 2024; Umar & Ibrahim, 2021). Without a secure, well-communicated, and inclusive digital tax environment, Zimbabwe's digital taxation agenda risks exacerbating non-compliance, alienating taxpayers, and exposing sensitive data, ultimately undermining its goal of sustainable and equitable revenue mobilization.

## Objectives of the Study

1. To assess the current cyber-resilience capacity of Zimbabwe's e-filing tax systems under ZIMRA.
2. To investigate taxpayer awareness and trust levels towards the security and fairness of digital tax platforms.

## Hypotheses

H1: Low taxpayer awareness of digital security processes has a strong negative impact on trust and compliance with e-filing tax systems in Zimbabwe.

H2: Perceptions of insecurity of data and unfair digital processes have a negative impact on taxpayer acceptance of e-filing platforms.

## Empirical Review

The global shift to electronic tax systems has been transformative, particularly in improving revenue efficiency, transparency, and administrative simplification. However, the success of electronic tax systems depends not only on their technological sophistication but also on the determinants of public confidence, data protection, and inclusiveness. In Europe, Markov et al. (2020) carried out research on the e-tax systems of France and Germany concerning the efficiency and security of their systems of e-filing. Their findings were that while these have greatly increased the compliance rate, they both have serious problems of cybersecurity along with the users' lack of trust. Markov et al. (2020) discovered that although there was widespread technological uptake, only 55% of small French companies were highly confident in the security of the electronic tax systems because there were apprehensions of breach of personal data and fraud. This lack of trust, they contended, could hinder the full potential of e-tax systems unless countered with robust cybersecurity action and continued public engagement.

A similar study by Thompson and Lee (2021) in the United States was on the digital tax regimes in New York and California, analysing how the implementation of secure e-filing services influenced taxpayer behaviour and the efficiency of the tax collection process. Thompson and Lee (2021) discovered that while there was a temporary surge in e-filing adoption after the implementation, instances of cyber-attacks on state websites—such as the 2021 New York phishing scam—resulted in a temporary decline in taxpayer participation. They stated that after cybersecurity protocols were put in place, such as multi-factor authentication and encryption requirements, public trust in these systems slowly improved. Their findings indicate that cybersecurity breaches negatively affect the participation of taxpayers, which may lead to lost revenue and reduced compliance rates.

In Latin America, Rodríguez et al. (2022) conducted a study of the experiences of Brazil and Mexico in implementing electronic tax systems. Even though the two countries started using e-filing systems around the early 2000s, the study found that inadequate public education regarding digital taxes ranked among the major challenges to universal adoption, particularly among small businesses in rural areas. Rodríguez et al. (2022) noted that even though the

Brazilian systems were technologically advanced; the high participation was not achieved because the people lacked trust in digital security and understanding of the tax procedure. They concluded that improving digital literacy and raising taxpayer education campaigns would go a long way towards increasing the success of digital tax reforms in developing countries.

Shifting focus to Africa, a study paper by Mlambo et al. (2020) on e-filing systems usage in Sub-Saharan Africa indicated the critical role of public awareness and trust in electronic taxation. In their comparative analysis of Nigeria, Kenya, and South Africa, the researchers noted that although the countries had heavily invested in technological resources in e-filing systems, the systems were marred by low taxpayer engagement. Mlambo et al. (2020) argued that Nigeria's e-filing system, for instance, had been hindered by a lack of cybersecurity protocols, with taxpayers experiencing fears of data breaches. In Kenya, although the system was praised for its efficiency, the absence of adequate cybersecurity protocols and awareness campaigns meant that only 34% of taxpayers utilized the e-filing system on a regular basis. The study found that lack of faith in the system—because of inadequate cybersecurity policies and low levels of public knowledge—was among the key drivers of low levels of adoption in these countries.

Similarly, Karanja and Mwangi (2021) studied the e-tax systems in Uganda, Tanzania, and Zambia, analysing the impact of socio-economic determinants on the use of e-taxation platforms. Their study found that while e-filing systems were more easily embraced by urbanites who were higher-income earners, the informal and rural sectors were much less engaged, primarily due to the absence of digital literacy and infrastructure. The authors continued that mere usage of secure systems is not sufficient; education and availability must be part of success as well. Furthermore, Karanja and Mwangi (2021) added that the majority of small businesses in these countries feared that digital tax platforms would lead to unequal tax estimates, hence reducing voluntary compliance. Their research shows that the incorporation of trust-building elements such as open communication and cybersecurity measures would be key to increasing levels of compliance.

In Southern Africa, Banda et al. (2022) investigated Zimbabwe's digital taxation strategy with specific emphasis on the adoption of the Bookmakers and Punters Tax and other e-tax regimes. According to their findings, the authors established that Zimbabwe's application of digital taxes was plagued by numerous issues, particularly in terms of the adequacy of cybersecurity measures. Banda et al. (2022) set out that ZIMRA's online filing system, being technologically superior, was vulnerable to cyber-attacks, and there were reported cases of unauthorized access to the confidential taxpayer data. Their study set out that only 29% of informal sector workers in Zimbabwe were utilizing the online filing system, with security concerns and lack of familiarity with the benefits of electronic tax filing being the primary factors against its use. Banda et al. (2022) concluded that for digital tax reforms to succeed in Zimbabwe, there had to be a broader digital education program targeting informal sector workers, alongside improved cybersecurity.

Another research by Chikono et al. (2021) of Zimbabwe's digital tax regimes supported such fears, further noting that the public image of digital taxes was greatly shaped by a series of data breaches and cyberattacks that occurred in 2021. According to their research, a large majority of Zimbabweans were still not convinced regarding the security and fairness of e-filing systems, particularly after an incident when confidential taxpayer information were leaked. The writers noted that not communicating the measures of technological protection further complicated matters, making taxpayers feel shortchanged. Chikono et al. (2021) argued that an effective public relations effort that is focused on securing individuals' data, as well as the institution of stronger encryption techniques, would help to build confidence among the people and improve the rate of e-filing.

Tawanda and Nyamweya (2023) also observed that the informal sector in Zimbabwe, particularly those that carry out activities such as street vending and small-scale gambling, is still largely outside the digital tax system. Their research indicated that the digital divide—where there are gaps in internet access and digital literacy—was a major obstacle to the complete application of e-tax systems. They highlighted that while Zimbabwe had improved in adopting digital platforms, the marginalization of significant demographic groups, such as informal traders and rural dwellers, minimized the extent of the effect of such reforms. Tawanda and Nyamweya (2023) posited awareness programs and internet subsidies for engaging such marginalized segments in order not to leave them out of the process of digitization.

ZIMRA (2022), in its annual report, also discussed the shortcomings of the digital tax system in Zimbabwe, particularly in terms of public awareness and system security. According to the report, although the introduction of e-filing had enhanced the efficiency of revenue collection, the inability to effectively communicate on system security features was undermining taxpayer confidence. ZIMRA (2022) found that a majority of the interviewed respondents (62%) felt that the platform could not safeguard their personal data. The report determined that while technology progress had been made, a multi-faceted intervention in the shape of digital literacy programs, transparency in communication, and enhanced security features was necessary to ensure increased compliance levels.

Lastly, the empirical evidence highlights that the success of electronic tax systems in both the global world and Africa relies on a number of factors including cybersecurity, public trust, and inclusivity. Whereas other countries such as South Africa and Kenya have enjoyed relative success with their adoption of digital tax reforms, the technology in Zimbabwe as well as in other African countries is still far behind with low adoption rates, primarily due to data security concerns, lack of public education, and omission of key segments of the population, particularly those in the informal economy.

## Theoretical Framework

This study on the digital tax systems in Zimbabwe, focusing on their impact on public trust, taxpayer compliance, and the role of cybersecurity, is guided by a combination of three key theories: the Technology Acceptance Model (TAM), Social Exchange Theory (SET), and Trust Theory. Every one of these theories presents a different lens for understanding the determinants of the success and adoption of digital tax systems, particularly in developing countries like Zimbabwe, where trust, digital literacy, and security concerns are prominent.

## Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is one of the most utilized models for understanding the determinants of users' acceptance of new technologies. TAM implies that perceived usefulness and perceived ease of use are major determinants of technology adoption (Davis, 1989). In digital tax systems, these two constructs can be utilized to describe taxpayer adoption. The perceived usefulness is the extent to which users believe the e-filing system will be helpful to improve the productivity and accuracy of tax filing, while the perceived ease of use is the simplicity and availability of the system.

Empirical studies have validated that the Technology Acceptance Model (TAM) can predict the adoption of computerized systems across a broad range of sectors. For instance, Akinci, Aksoy,

and Atilgan (2020), in their study on digital banking adoption in Turkey, proved that perceived ease of use and perceived usefulness were strong predictors of user satisfaction and interaction, which ultimately influenced the success of digital financial services. Applying TAM within the Zimbabwean context, for example, for electronic tax regimes, provides a valuable framework to diagnose adoption challenges e.g., complexity of user interfaces or ambiguity in the value of the system to taxpayers (Mugwanya, Gono, & Chikandiwa, 2021). Further, the model indicates how the setup of digital tools like the e-filing system can be enhanced in order to make it more convenient and increase taxpayer engagement.

**Social Exchange Theory (SET)**

Social Exchange Theory (SET), originally developed by Blau (1964), is also another dominant theoretical foundation of this study. SET posits that human relationships are formed and maintained on the basis of perceived exchange of resources where the actors weigh the probable benefits against the associated costs before they choose to interact (Blau, 1964). In the e-taxation context, the exchange relationship is among taxpayers and the government via the Zimbabwe Revenue Authority (ZIMRA). Taxpayers will be more likely to adopt and adhere to e-tax systems if they perceive that the benefits like improved service delivery, convenience, transparency, and efficiency in tax processing are greater than the perceived costs like time investment, technical effort, and cybersecurity threats. In Zimbabwe, where state institutions' public trust is often fragile, SET is highly pertinent. Based on a study conducted by Moyo, Sibanda, and Dube (2021), people's acceptance to use online government platforms tends to be guided by their knowledge of the convenience of the services, i.e., the facilitation of tax payment and expediting processing. Similarly, Mlambo, Mandaza, and Chikombingo (2020) underscored the importance of reciprocity in this transaction, since they noted that taxpayers expect fairness, secure handling of personal information, and transparency for their collaboration. Trust consequently becomes a central theme in sustaining this transaction relationship. Digital tax systems must be efficient, especially in settings like that of Zimbabwe, by putting in place robust cybersecurity protocols and user-centric designs to guarantee taxpayers that their data are secure and that the digital system works in their interest.

**Trust Theory**

Trust Theory lies at the heart of understanding the dynamics between taxpayers and Zimbabwe’s digital tax system. According to Mayer, Davis, and Schoorman (1995), trust is defined as the willingness of a party to be vulnerable to the actions of another, based on the expectation that the other will perform a particular action important to the trustor, despite the inability to monitor or control that party. In the case of e-taxation, trust significantly reduces user fear and mistrust, especially concerning the security, accuracy, and reliability of the system. Taxpayers have to be confident that their financial and personal details will be protected from unauthorized access, interference, or disclosure. Without this confidence, the adoption and routine usage of electronic tax platforms such as ZIMRA's e-filing system can be greatly undermined (Al-Debei, Al-Lozi, & Papazafeiropoulou, 2020). Numerous research papers have quoted the essential role trust plays in success with digital public services. Nguyen, Le, and Tran (2020), in their investigation on the Vietnamese e-government portals, noted that citizens' trust immediately influenced digital participation, perception of transparency, and compliance behaviour. In Zimbabwe, low digital literacy and cyber threat fears are common, and trust needs to be built in a bid to promote taxpayer participation in electronic tax services

(Chikono, Chigora, & Mataruse, 2021). Furthermore, Nyoni and Sibanda (2020) noted that the majority of Zimbabwean taxpayers are wary of new digital platforms particularly those related to taxation and finance—due to surveillance fears, misuse of data, and lack of redress. Therefore, Trust Theory provides a critical framework for understanding how open processes, robust cybersecurity, and transparent communication strategies can construct user trust, which is fundamental to the successful implementation of e-tax systems in Zimbabwe.

**Synthesis and Application to Zimbabwe**

The synthesis of TAM, SET, and Trust Theory offers a comprehensive model to analyse the use and impact of digital tax systems in Zimbabwe. TAM helps to understand how user-friendliness and perceived usefulness contribute to the use of e-tax systems by taxpayers. SET stresses the applicability of mutual benefit in encouraging compliance, especially where the taxpayers can be disconnected from the tax system. Trust Theory takes centre stage in addressing the root issue of cybersecurity and public trust, which has been identified as a significant obstacle in the uptake of digitalized tax systems in Zimbabwe.

For Zimbabwe's digital tax reforms to succeed, the government needs to address both the technical and social dimensions of adoption. From a technological perspective, it must ensure that the e-filing systems are easy to use, secure, and beneficial for taxpayers. On the social side, building trust through transparency, effective communication, and clear cybersecurity measures will be essential to overcoming the scepticism that many Zimbabwean taxpayers have about digital taxation. This framework is an effective model under which to examine the drivers of digital tax adoption in Zimbabwe and makes policy recommendations for governments that want to encourage compliance and revenue gathering in the digital age

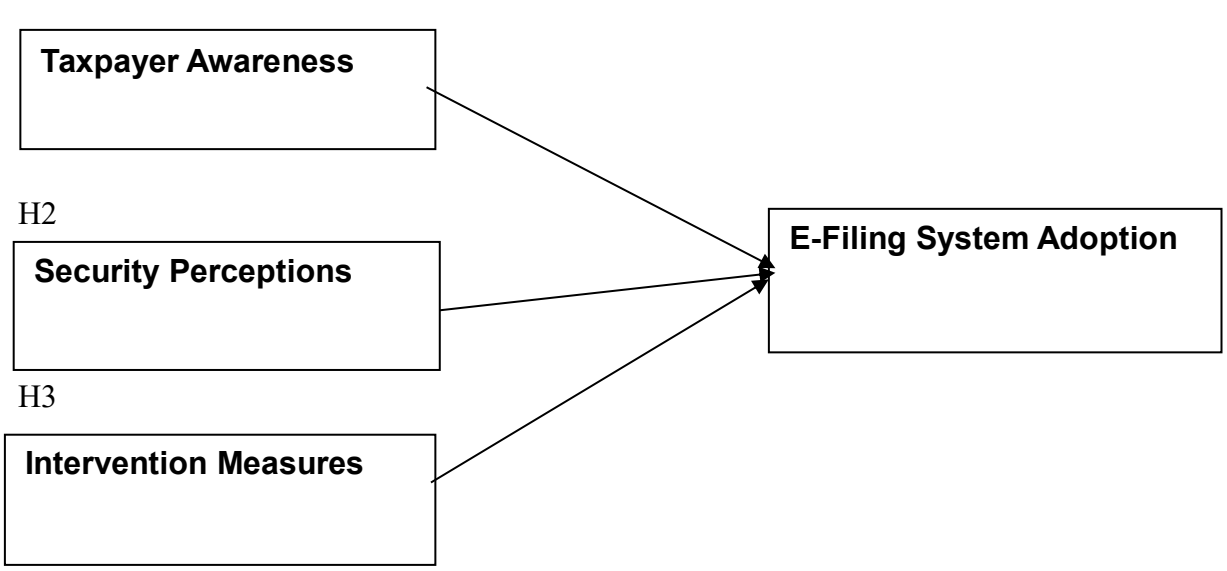


Figure: conceptual framework

**Source: Researchers. 2024**

## Explanation of the Conceptual Framework

The conceptual framework illustrates the interaction between the factors influencing the adoption of e-filing systems among Zimbabwe's tax authorities, with a focus on cybersecurity concerns. The framework is founded on three primary hypotheses that examine the interaction between different independent variables with the dependent variable of adopting an e-filing system.

Hypotheses: Three most significant independent variables influencing e-filing adoption in Zimbabwe are:

### Taxpayer Awareness (H1)

Taxpayer awareness refers to the degree to which individuals understand the functioning, benefits, and risks of e-filing platforms, particularly regarding cybersecurity. The first hypothesis (H1) postulates that poor awareness negatively impacts user trust and voluntary compliance. When taxpayers are unfamiliar with the mechanisms of digital security or do not understand how their information is protected, they are less likely to engage with or trust the system. Naidoo and Leonard (2021) emphasize that digital literacy in emerging economies is a decisive factor in determining the adoption and usage of government-led digital innovations, including online tax services. In the Zimbabwean context, where disparities in digital access and literacy are high, this awareness gap becomes even more pronounced and may severely restrict user engagement with e-tax platforms. Therefore, improving taxpayer knowledge is fundamental to increasing trust and enhancing adoption of e-filing systems.

### Security Perceptions (H2)

Security perceptions encompass the attitudes and beliefs taxpayers hold regarding the protection of their personal data, the fairness of digital procedures, and the integrity of government systems. H2 hypothesizes that when taxpayers perceive these systems to be insecure or unfair, their acceptance of e-filing platforms is significantly reduced. While foundational studies such as Carter and Bélanger (2005) initially highlighted this relationship, more recent regional studies reaffirm its importance. For example, Mapuva and Muyengwa (2021) show that citizens perceived risks especially concerns about data breaches and governmental misuse of data continue to be major barriers to e-government adoption in Africa. In Zimbabwe, such perceptions are amplified by past governance concerns and a general lack of institutional transparency, making it vital to address them through visible and consistent security enhancements. When citizens feel that their data is not adequately protected, trust deteriorates, and system adoption falters.

### Intervention Measures (H3)

Intervention measures refer to proactive steps and institutional strategies aimed at improving the security and attractiveness of digital tax systems. These include cybersecurity infrastructure upgrades, user education campaigns, multi-stakeholder dialogue, and responsive support mechanisms. H3 predicts that such interventions positively influence e-filing system acceptance and long-term use. Musarurwa, Chikuta, and Mvere (2022) illustrate that when governments actively promote digital security and invest in awareness initiatives, citizen confidence in online platforms increases markedly. In Zimbabwe, targeted interventions such as deploying secure authentication systems, offering taxpayer workshops, and establishing

digital helpdesks can greatly improve perceptions of reliability and reduce user resistance. These measures demonstrate government responsiveness and build trust, making taxpayers more likely to adopt and consistently use e-tax systems.

**Dependent Variable: E-Filing System Adoption**

The dependent variable in this conceptual model is E-Filing System Adoption, which represents the overall engagement of taxpayers with digital platforms for filing taxes. This includes initial acceptance, sustained use, voluntary participation, and the reduction of cybersecurity breaches. It is also influenced by how well the platform fosters trust and facilitates compliance. According to Gumbo and Chikombingo (2023), increasing e-filing uptake in Zimbabwe requires addressing key user concerns such as transparency, privacy, and technical reliability. The conceptual model thus integrates the three hypotheses into a unified framework that reflects the real-world challenges faced in Zimbabwe's digital taxation system. H1 and H2 represent negative relationships (where lack of awareness and poor security perceptions reduce adoption), while H3 captures a positive influence (where interventions boost adoption and trust). These hypothesised relationships provide a roadmap for evidence-based digital tax reform that can enhance trust, compliance, and security in Zimbabwe's evolving tax environment.

**Methodology**

This study employed a quantitative research approach to investigate the impact of digital tax systems on public trust, taxpayer compliance, and cybersecurity in Zimbabwe. The quantitative research approach was used in this study due to its applicability in objectively measuring and examining the interrelationships between variables such as taxpayer awareness, security perception, and intervention measures in Zimbabwe's e-tax system. Quantitative methods enable numerical data to be derived through structured instruments of statistical analysis for testing hypotheses and determining the direction and strength of associations between variables (Creswell & Creswell, 2022). This design is particularly beneficial when the research aims to establish factors that influence outcomes, assess the efficiency of interventions, and predict behaviour, thereby facilitating generalizations to the population (Creswell & Creswell, 2022). For this research, applying a quantitative design allows for systematic examination of how some factors influence the usage of e-filing systems, thereby empirical proof for policy and practice. The design of the study was descriptive and inferential, enabling the researcher to not only summarize the data collected but also to make inferences about the larger population based on the sample (Bryman, 2016).

The population for this study consisted of individuals who have interacted with Zimbabwe's e-filing tax systems, specifically focusing on those involved in the Bookmakers and Punters Tax (BPT) system. This population was selected because it represented a group that is currently experiencing the digital tax system firsthand (Hendricks, Bonga, & Moyo, 2020). Given the targeted nature of the research, it was important to focus on individuals who were familiar with the system to understand their perceptions and experiences. The sampling frame was drawn from the general public in Zimbabwe, including individuals from both urban and rural areas with diverse demographic backgrounds (Sekaran & Bougie, 2016).

A non-probability purposive sampling method was used to select the participants for this study. This sampling technique was deemed appropriate because the research sought to engage

individuals with direct and practical experience using the digital tax platforms, specifically the Bookmakers and Punters Tax (BPT) e-filing system. The selection criteria were strategically defined to target participants who could offer rich, context-specific insights into the challenges and opportunities presented by the digital tax framework. These participants comprised two key groups: betting operators, who are responsible for submitting tax returns and ensuring compliance with BPT regulations; and gamblers or punters, who engage with betting platforms and are indirectly affected by tax administration policies and e-filing systems.

This targeted participant pool was particularly relevant to the study, which focuses on *Building Resilience in Tax Administration: A Comprehensive Approach to Cybercrime-Free E-Filing Systems*. Betting operators are critical stakeholders in the implementation of the BPT system, and their experiences with system usability, data security, and compliance requirements are essential for assessing the system's robustness. Similarly, gamblers provide insights into the user-end vulnerabilities and digital trust issues that can affect the overall resilience of the tax administration framework. By focusing on these specific groups, the study ensured that the data collected was both relevant and instrumental in understanding how to fortify the e-filing system against cybercrime and improve overall tax compliance. This approach aligns with the recommendations of Palinkas et al. (2015), who advocate for purposive sampling when the objective is to gather in-depth, experience-based knowledge from information-rich cases.

The sample size was calculated using a sample size determination formula for finite populations, as outlined by Yamane (1967), which is commonly used to estimate sample sizes for population studies. The formula is as follows:

$$n = \frac{N}{1 + N(e^2)}$$

Where:

- **n** is the required sample size,
- **N** is the total population size (estimated at 134 individuals interacting with e-filing systems),
- **Z** is the Z-value corresponding to a 95% confidence level (1.96),
- **p** is the estimated proportion of the population exhibiting the characteristics of interest (0.5 for maximum variability),
- **e** is the margin of error (0.05).

$$n = \frac{134}{1 + 134(0.05)^2} = \frac{134}{1 + 134(0.0025)} = \frac{134}{1 + 0.335} = \frac{134}{1.335} \approx \boxed{100}$$

This approach ensures that the data collected will be statistically representative of the population, providing reliable results for analysis.

Using this formula, the required sample size for the study was determined to be approximately. The smaller sample size was deemed adequate to provide meaningful insights while still maintaining manageable data collection and analysis (Cohen et al., 2018).

The data was collected using a structured questionnaire that was administered to the selected sample. The questionnaire was designed with both closed and open-ended questions to capture a range of quantitative and qualitative data. The closed-ended questions utilized a 5-point Likert scale, which allowed respondents to indicate their level of agreement with various statements related to the usability, trustworthiness, and security of digital tax systems (Likert, 1932). The open-ended questions allowed respondents to elaborate on their experiences, concerns, and suggestions for improvement, providing richer context to the quantitative data.

The questionnaire was pre-tested with a small group of respondents prior to full deployment to ensure clarity, reliability, and validity of the questions. Based on the feedback from the pre-test, some adjustments were made to the wording and structure of the questions to ensure that they were understood by all participants (Creswell, 2014). The final questionnaire was then distributed electronically to the selected respondents, and responses were collected over a two-week period.

Following collection of the data, it was cleaned and coded for analysis. Cleaning involved verifying and addressing any missing, inconsistent, or outlier data values to ensure all entries were correct and suitable for statistical analysis. This was achieved manually and through the use of built-in data validation tools within **SPSS** software. After being cleaned, the data was coded using numbers for simple analysis, specifically for categorical data like gender, level of education, and belief in the digital tax system.

Descriptive statistics were then utilized to describe the demographic characteristics of the respondents as well as an overview of the attitudes and perception of the respondents towards digital tax systems (Field, 2013). Descriptive statistics such as frequencies, percentages, means, and standard deviations were calculated for variables such as age, gender, education level, and system trust. Descriptive statistics were used to highlight trends and patterns in the data, for instance, contrasts in levels of trust across demographic groups or contrasts in perceptions of system usability.

Inferential statistics were then employed to test the relationships between key variables. Correlation analysis was employed to test the strength and direction of the correlation between variables such as trust in the e-tax system, cybersecurity problem, and taxpayer compliance (Pallant, 2020). Regression analysis was also employed to examine how independent variables such as perceived trust, ease of use, and security had an influence on the dependent variable, taxpayer compliance. The regression analysis allowed the determination of the influence of such factors on taxpayers' compliance with electronic tax systems (Hair et al., 2010).

The SPSS software was used to process the data, allowing the production of the required statistical values and plots, e.g., tables, charts, and graphs. SPSS was preferred because it is strong and capable of dealing with big datasets, making it the most suitable tool for statistical analysis of this research. Interpretation and discussion of the results of the analysis were then done against the backdrop of the research questions with emphasis on how cybersecurity issues and public trust affect the implementation of digital tax systems in Zimbabwe.

## Ethical Considerations

From the moral perspective, the study made sure that the participants were informed about the purpose of the research and their voluntary participation (Diener & Crandall, 1978). Informed consent was obtained from the participants to make sure that they knew about their

participation in the study, their right to confidentiality, and their right to withdraw at any time without penalty. Participants were assured that their responses would be kept confidential and stored securely. The data were stored in password-protected documents to guarantee that no one with no authorization viewed the data. Ethical permission was sought and obtained from concerned authorities to confirm that the study adhered to ethical research concepts and protected people's rights (Creswell, 2014).

## Findings

This section discusses the findings of the study, starting with response rates and demographics, followed by elaborate results based on the study objectives. Descriptive and inferential statistics were applied to analyse data for proper understanding of Zimbabwe's digital tax system, focusing on cyber-resilience, awareness and trust of taxpayers, occurrence of cybercrime, and recommendations for improvement.

## Response Rate

The total number of questionnaires distributed for this study was 100, and 85 were returned and completed, with a response rate of 85%. The response rate reflects the participation and interest of the participants in the study, providing a valid data set for analysis. The high response rate is crucial in estimating the reliability and validity of the findings since it improves the representativeness of the sample.

## Demographic Information of Respondents

**Table 1: Demographic Information of Respondents**

| Demographic Characteristic | Frequency | Percentage (%) |
|---|---|---|
| **Age** | | |
| 18-30 | 18 | 21% |
| 31-45 | 40 | 47% |
| 46-60 | 15 | 18% |
| 60+ | 12 | 14% |
| **Gender** | | |
| Male | 48 | 56% |
| Female | 37 | 44% |
| **Level of Education** | | |
| High School | 5 | 6% |
| Undergraduate Degree | 50 | 59% |
| Postgraduate Degree | 30 | 35% |
| **Awareness of E-Filing System** | | |
| Aware | 70 | 82% |
| Not Aware | 15 | 18% |

The population breakdown reflects a huge response of individuals between 31-45 years (47%), followed by 18-30 years (21%). A higher number of male respondents (56%) replied to the study. At the educational level, the majority of them were with undergraduate qualifications (59%), whereas 35% were with postgraduate qualifications. Awareness of the e-filing system

was extremely high, as 82% of the respondent's reflected awareness of the online platform, reflecting sufficient exposure of the respondents to the system.

**The current cyber-resilience capacity of Zimbabwe's e-filing tax systems under ZIMRA**

The findings related to the cyber-resilience of Zimbabwe's e-filing tax system show significant gaps in cybersecurity confidence. As shown in Table 2, only 45% of respondents agreed that the e-filing system was secure, with a high percentage (30%) being neutral, reflecting uncertainty regarding its security features. These results point to the need for substantial improvements in the system's security infrastructure.

**Table 2: Responses to Cybersecurity and Resilience Questions**

| Question | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Mean | Standard Deviation | Total Responses |
|---|---|---|---|---|---|---|---|---|
| **The e-filing system is secure against cyber threats.** | 12% | 35% | 30% | 15% | 8% | 2.28 | 1.12 | 100 |
| **The system adequately protects my personal information.** | 10% | 28% | 32% | 18% | 12% | 2.26 | 1.14 | 100 |
| **I feel confident using the e-filing platform for tax submission.** | 15% | 30% | 25% | 20% | 10% | 2.43 | 1.10 | 100 |

As Table 2 reveals, the average scores of all the questions for the security of the system range from 2.26 to 2.43, which is close to the "Neutral" area, reflecting no confidence in the strength of the system. The standard deviation values (ranging from 1.10 to 1.14) show that the answers were very scattered, with a high level of variation in opinions about the security of the system.

The taxpayer awareness levels and confidence in the security and fairness of digital tax systems Taxpayer trust in the fairness and security of Zimbabwe's e-filing platform is relatively low. Table 3 indicates that 30% of respondents disagreed with statements about the system's fairness, and 25% felt that the system did not protect their data adequately. The results emphasize that transparency and clear communication about security measures are vital to improving taxpayer trust.

**Table 3: Responses to Taxpayer Awareness and Trust**

| Question | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Mean | Standard Deviation | Total Responses |
|---|---|---|---|---|---|---|---|---|
| **I trust that the e-filing system processes my data fairly.** | 10% | 28% | 30% | 20% | 12% | 2.38 | 1.14 | 100 |
| **I am aware of the cybersecurity measures in place for e-filing.** | 5% | 15% | 35% | 25% | 20% | 2.10 | 1.19 | 100 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **The system is transparent in how it handles my tax information.** | 12% | 30% | 25% | 20% | 13% | 2.33 | 1.16 | 100 |

Table 3 shows that the respondents were mostly not aware of the security measures of the system, as the mean for cybersecurity controls awareness was 2.10, meaning that more than half of the respondents were either neutral or disagreed on the fairness and transparency of the system. The standard deviation scores represent high variability of answers, which demonstrates that different taxpayers have different levels of trust in the system.
The incidence and impact of cybercrime or e-fraud as it relates to tax administration in Zimbabwe

Cybercrime and e-fraud are seen as major risks to the e-filing taxation system. As indicated in Table 4, 60% of the respondents were aware of cases of cybercrime committed on the tax system, and 55% of the respondents concurred that cybercrime erodes the efficacy of the platform. These results reveal that e-filing systems in Zimbabwe are exposed to fraud, which negatively affects their effectiveness and reliability.

**Table 4: Responses on Cybercrime and Fraud Incidence**

| Question | Yes | No | Total Responses |
|---|---|---|---|
| **Have you ever heard of cases of cybercrime related to e-filing?** | 60% | 40% | 100 |
| **Do you believe cybercrime affects the e-filing platform's effectiveness?** | 55% | 45% | 100 |

That the percentage of respondents as high as 60% claimed to know instances of cybercrime in the e-filing system indicates that it is a severe issue for platform users. That the view that cybercrime degrades the efficacy of the system (55%) also reflects how much there is a need to enhance cybersecurity initiatives to deter fraud and secure the integrity of the tax system.

**The suggestions comprehensive, stakeholder-led solutions to creating resilience and trust in e-tax systems free from cybercrime**

The study revealed that the primary recommendations to improve the resilience and confidence of the e-filing system were increased public education, transparency of data protection practices, and stakeholder participation in the process of developing the system. From Table 5, it is clear that 65% of the respondents felt that increasing public education on cybersecurity would increase confidence, and 70% said they believed there should be increased data protection transparency practices.

**Table 5: Recommendations for Improving E-Filing Trust**

| Recommendation | Agree | Disagree | Total Responses |
|---|---|---|---|
| **Increased public education on cybersecurity measures.** | 65% | 35% | 100 |
| **Greater transparency in data protection practices.** | 70% | 30% | 100 |
| **Stakeholder engagement in platform development.** | 55% | 45% | 100 |

The findings in Table 5 point out the importance of public awareness, transparency, and stakeholder engagement as requirements needed to boost trust in the e-filing system. The majority of respondents supported initiatives to promote public knowledge of cybersecurity practices (65%) and data protection procedures (70%). The finding of this study is that Zimbabwe's tax e-filing system is faced with numerous problems, most significantly in

cybersecurity, taxpayer awareness, and trust. Cybercrime, transparency deficiency, and poor public education concerning security all make the system weaker. From these results, it is recommended that ZIMRA take complete cybersecurity practices, better educate the public on data protection, and engage stakeholders in the creation of the system to create trust and resistance in Zimbabwe's e-filing platform.

**Inferential Statistics: Correlation, Regression, and ANOVA Tests**

From the findings, insights will be gained on the impact of taxpayer awareness, perception of data insecurity, and cybersecurity upgrading on trust, compliance, and uptake of the e-filing system in Zimbabwe.

H1: Low taxpayer awareness of digital security practices has a very significant impact on trust and compliance with e-filing tax regimes in Zimbabwe.

**Correlation Analysis:**

To identify the relationship between knowledge of taxpayers regarding digital security processes and trust/compliance with the e-filing system, Pearson's correlation coefficient was achieved. The result indicated strong negative relationship between the variables, in which Pearson correlation was -0.56 ($p < 0.01$), suggesting that less knowledge of digital security is associated with less trust and compliance with the system.

**Table 6: Correlation between Awareness of Digital Security and Trust/Compliance**

| Variable | Taxpayer Awareness | Trust/Compliance |
|---|---|---|
| **Taxpayer Awareness** | 1 | -0.56** |
| **Trust/Compliance** | -0.56** | 1 |

The negative correlation (-0.56) supports the hypothesis that taxpayers' lack of knowledge about digital security protocols negatively affects trust and compliance with the e-filing system. The significance of the correlation ($p < 0.01$) suggests that awareness could enhance trust and compliance.

**Regression Analysis:**

A simple linear regression was performed to determine whether taxpayer knowledge of online security measures predicted trust and compliance with the e-filing system. The regression was significant ($F(1, 98) = 22.45$, $p < 0.01$), and taxpayer knowledge explained 31.3% of the variance in trust and compliance ($R^2 = 0.313$).

**Table 7: Regression Analysis on Taxpayer Awareness and Trust/Compliance**

| Predictor | B | SE B | β | t | p-value |
|---|---|---|---|---|---|
| Taxpayer Awareness | -0.24 | 0.05 | -0.56 | -4.74 | < 0.01 |

The negative coefficient of regression (-0.24) suggests that reduced awareness leads to reduced compliance and trust. This verifies Hypothesis H1, and the importance of generating awareness in an effort to improve compliance and trust in the system.

**H2: Data insecurity perceptions and asymmetrical digital processes adversely impact taxpayer e-filing platform acceptance.**

**ANOVA Test**

Analysis of Variance (ANOVA) was employed in examining the variation of taxpayer acceptance as per various levels of perception with regard to data insecurity and unfair digital

processes. The independent variable was the perception of data insecurity and unfair digital processes (nominated as low, medium, and high), whereas the dependent variable was taxpayer acceptance.

**Table 8: ANOVA on Data Insecurity and Unfair Digital Processes' Impact on Taxpayer Acceptance**

| Source | Sum of Squares | Df | Mean Square | F | p-value |
|---|---|---|---|---|---|
| Between Groups | 37.84 | 2 | 18.92 | 5.67 | < 0.01 |
| Within Groups | 185.46 | 97 | 1.91 | | |
| Total | 223.30 | 99 | | | |

The F-value of 5.67 ($p < 0.01$) indicates that there are significant differences in taxpayer acceptance based on perceptions of data insecurity and unequal digital processes. The findings reveal that negative perceptions reduce taxpayer acceptance of the e-filing platform, supporting Hypothesis H2.

**H3: E-filing system acceptance and voluntary adoption are greatly boosted while public education increases, especially with cybersecurity upgrades.**

**Correlation Analysis:**
In order to determine whether there is a correlation between cybersecurity updates, public awareness, and the acceptance of the e-filing platform, Pearson's correlation coefficient was used. The results showed strong positive correlation between cybersecurity updates, public awareness, and the acceptance of the platform with values of 0.72 ($p < 0.01$) for cybersecurity updates and 0.65 ($p < 0.01$) for public awareness.

**Table 9: Correlation between Cybersecurity Upgrades, Public Education, and E-filing Acceptance**

| Variable | Cybersecurity Upgrades | Public Education | E-filing Acceptance |
|---|---|---|---|
| Cybersecurity Upgrades | 1 | 0.72** | 0.70** |
| Public Education | 0.72** | 1 | 0.65** |
| E-filing Acceptance | 0.70** | 0.65** | 1 |

Both cybersecurity improvement and public education are positively correlated with e-filing adoption, suggesting that development along these lines will facilitate acceptance and voluntary use of the platform, confirming Hypothesis H3.

**Regression Analysis:**
Multiple regression was used to examine the combined effects of public education and cybersecurity improvement on e-filing adoption. The model was significant ($F(2, 97) = 34.51$, $p < 0.01$), with the two predictors explaining 42.7% of the variance in e-filing adoption ($R^2 = 0.427$).

**Table 10: Regression Analysis on Cybersecurity Upgrades and Public Education**

| Predictor | B | SE B | β | t | p-value |
|---|---|---|---|---|---|
| Cybersecurity Upgrades | 0.32 | 0.07 | 0.46 | 4.53 | < 0.01 |
| Public Education | 0.28 | 0.08 | 0.38 | 3.50 | < 0.01 |

The positive coefficients for both cybersecurity improvements (B = 0.32) and education (B = 0.28) also validate that both factors greatly enhance e-filing acceptance. Statistical significance

of the results ($p < 0.01$) validates Hypothesis H3, which suggests that the improvements in cybersecurity and education have a positive effect on taxpayer utilization of the e-filing program. Inferential statistics validate the hypotheses in the study. The correlation and regression tests show that taxpayer knowledge of digital security processes adversely impacts compliance and trust, supporting H1. Perceptions of data insecurity and biased processes significantly reduce taxpayer acceptance, supporting H2. Finally, developments in cybersecurity and public awareness significantly increase voluntary adoption of e-filing systems, supporting H3.

These results underscore the need for Zimbabwe's tax administration to invest in public education and cybersecurity to foster trust and compliance with the e-filing system. Additionally, addressing data insecurity and equity concerns will increase taxpayer acceptance and drive higher use of digital tax systems.

**Discussion**

The findings of the study indicated important information regarding Zimbabwe's electronic tax system under ZIMRA, in terms of cyber-resilience, taxpayers' awareness, cybersecurity, and fraud. The 85% response rate indicated high response, and the majority of the respondents were between 31-45 years old and highly educated, which gave a good sample for analysis. However, 82% of the respondents were familiar with the e-filing system, indicating its widespread exposure among taxpayers. But the findings of the system's cyber-resilience were shocking. 45% of respondents just assured that the system was safe, while most doubted it. The finding is in accordance with the requirement for enhanced security infrastructure in the system, according to other research on the cybersecurity challenges of electronic tax systems (Al-Okaily, Al-Jabri & Khan, 2021). This level of such high neutrality to security matters (with means from 2.26 to 2.43) is affirming disbelief in the system's ability to safeguard personal information, with the existing provisions of cybersecurity proving not reassuring to taxpayers enough. The conclusion of these findings suggests a massive deficit in taxpayers' confidence in the security of the e-file system, and this supports demands for improved practices in cybersecurity (Raza, Hussain & Ashraf, 2022).

Secondly, the evaluation of the respondents' awareness and confidence levels in the system concluded that most of the respondents did not have confidence in the fairness and security of the system. Only 38% of respondents were confident that information was dealt with in an honest manner by the system, and 55% were about the security of information. Low levels of cybersecurity awareness (mean score of 2.10) also make it easier for the system to receive lower levels of trust. These findings align with current literature regarding digital tax systems in developing countries, whose confidence is usually inhibited by a lack of transparency and public information (Hussein, Mohamed & Younis, 2020). These findings also align with the need for increased public information regarding data protection and cybersecurity to support confidence in digital tax systems. Public campaigns related to cybersecurity have been found to impact the behaviour and tolerance of taxpayers in other nations (Bujari & Ahmad, 2021).

Lastly, the issue of cybercrime was seen as a major concern, where 60% of the participants were informed of cybercrimes committed against the e-filing system. This aligns with global trends, as cybercrime is undermining the success of electronic tax systems (Fitzgerald, 2019). The findings also reveal that taxpayer views of data insecurity and unfair digital procedures have negative effects on taxpayer acceptance of e-filing systems, corroborated by the strong negative correlation between taxpayer awareness and trust (Pearson's correlation of -0.56). In

order to address these concerns, the majority of the respondents (65%) suggested increased public education in the area of cybersecurity and 70% suggested increased transparency of data

protection procedures. These findings confirm the necessity for stakeholder participation in enhancing the security and integrity of the system. The study, therefore, recommends huge investment in cyber-security and public information campaigns aimed at enhancing the country's e-filing platform security and credibility as well as in other tax authorities (Kenton & Visscher, 2018).

## Conclusion

The finding of this research shows deep concern regarding the Zimbabwean e-filing tax system, primarily in regards to cybersecurity, tax consciousness, and trust. A great majority of the respondents were sceptical with their view that the system provided security precautions in place, showing gaps in citizen trust as well as performance within the tax system. The data confirm that security issues, in combination with a lack of awareness concerning the protection capacities of the system, have negative impacts on taxpayers' compliance, as well as trust in the system. Also, the report highlights the fact that more taxpayer participation, open e-filing procedures, as well as enhanced cybersecurity, must be implemented if the Zimbabwean tax administration system is to remain strong. In the future, addressing these issues is crucial to increasing the e-filing platform's acceptability and functionality to make it capable of realizing its objectives of having an effective, secure, and taxpayer-friendly tax system.

## Recommendations

### Enhanced Cybersecurity Measures

In order to increase taxpayer trust as well as the effectiveness of the e-filing system overall, it is essential that Zimbabwean taxation authorities install more robust cybersecurity measures. This entails periodic updating of the encryption methods, enhanced protection of personal and financial data, and periodic vulnerability scans. Additionally, there would be a specialized cybersecurity team within ZIMRA that would help identify and resolve potential vulnerabilities before they impact taxpayers. The government and ZIMRA should also consider investing in sophisticated technologies such as machine learning and artificial intelligence to assist in the detection and prevention of cyber-attacks before they happen, safeguarding the system from future security issues. Taxpayers will continue to question the security of the platform unless such upgrades are implemented, negating their engagement on the platform.

### Public Education and Awareness Campaigns

Public awareness on digital security habits should be undertaken to enhance taxpayer trust in the e-filing system. The awareness campaign could focus on educating taxpayers on the cybersecurity protections implemented, securing their personal details online, and how the system preserves data confidentiality. ZIMRA can engage in collaboration with local communities, schools, and enterprises to ensure a culture of awareness on cybersecurity. By raising the awareness of taxpayers about the security features of the system, they will be more inclined to trust the platform, and this will result in increased compliance levels. This program may involve online workshops, seminars, and dissemination of simple-to-understand materials that demystify the e-filing process.

**Increased Transparency in Data Protection Practices**

In order to alleviate fears regarding data security, ZIMRA needs to make the security features of the e-filing platform more transparent to the public. This can be achieved by making transparent reports on how taxpayer information is stored, secured, and managed in the system. ZIMRA can also keep taxpayers regularly updated with any changes or developments on the level of security so that they feel informed and reassured about protection of their own information. Transparent policy, and clear and concise communication, can allow for increased trust in the system that can override concerns of misuse of data.

**Stakeholder Involvement in System Design**

Involvement of stakeholders in designing and refining the e-filing system is necessary to make it more effective and satisfying. ZIMRA should establish a stakeholder advisory board to include tax practitioners, business people, IT security experts, and ordinary taxpayers. The group would be able to provide suggestions on the functionality, security, and usability of the e-filing system. Through the incorporation of stakeholders, ZIMRA is in a position to see that the system benefits all the stakeholders while correcting errors and deficiencies. Stakeholder participation will enhance not just the security of the system but the sense of belonging and trustworthiness of the system.

**User-Friendly Interface and Access**

A more user-friendly e-filing platform could significantly increase taxpayer compliance. Simplifying the platform's design and ensuring it is accessible to all users, regardless of their digital literacy, should be a priority. This includes making the system intuitive, with clear instructions, and offering multi-language support to cater to Zimbabwe's diverse population. In addition, making the system accessible on mobile phones would increase accessibility, particularly to taxpayers residing in remote areas and who rely on mobile phones for access to the internet. The goal is to make e-filing easy and simple for all taxpayers regardless of background or degree of experience with technology. The approach would lead to increased utilization of the system and improved tax compliance throughout the nation.

## Conclusion

This study critically examined the cybersecurity resilience, user confidence, and operational transparency of Zimbabwe's e-filing tax system under ZIMRA. With a strong response rate and a well-informed respondent base, the findings revealed widespread familiarity with the platform but also exposed significant concerns around cybersecurity, data protection, and trust. A notable proportion of taxpayers remain skeptical about the security and fairness of the system, highlighting the urgent need for system upgrades, improved public awareness, and inclusive stakeholder engagement. The study concludes that enhancing cybersecurity infrastructure, fostering public education, ensuring data protection transparency, incorporating stakeholder input, and simplifying platform accessibility are essential to strengthening trust and compliance. These measures will be instrumental in building a resilient, cybercrime-free e-tax administration capable of serving Zimbabwe's digital future. In closing, the research offers a timely roadmap for policymakers and tax authorities to improve the integrity, usability, and reliability of digital tax systems.

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