

Tax Education, Digital Technology, and Tax Administration of the Nigeria Revenue Service

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ABSTRACT

The study examined tax education, technology, and its role in tax administration at the Nigeria Revenue Service. The study adopted a cross-sectional survey research approach. The population of the study included 210 employees of the Nigeria Revenue Service in Benin City, Edo State, tax specialists, and taxpayers. Convenience sampling was employed to choose the tax payers and tax experts. The data collection method was the survey which yielded a sample of 181 respondents, with the online Google form serving as the data collection instrument. The obtained data was analyzed using descriptive and regression statistics. The study discovered a positive and statistically significant link between tax payer education and awareness and tax payer compliance. The study also discovered a strong link between digital transformation and harmonizing tax systems administration in Nigeria. In addition, the study found a positive attitude toward the employment of digital technology in tax administration. In Nigeria, digital revolution in tax administration is seen positively. Taxpayer education is critical to improving tax compliance in Nigeria's digital age. The following elements impact tax payers' attitudes and actions regarding digital technology in tax administration: cost, security, accessibility, convenience, and user-friendliness. Based on the findings, the report suggests that tax authorities continue to use technology in tax administration, with a focus on tax payer education and awareness, since this has been proved to improve compliance and efficiency.

Keywords: *Tax Education, Digital Technology, Tax Administration, Nigeria Revenue Service.*

1. INTRODUCTION

Technology's development and integration have had a big influence on many facets of taxpayers' lives. Technology's ability to improve tax administration procedures and boost taxpayer compliance has gained more attention in recent years. Governments must administer taxes because they guarantee the efficient provision of public services and offer a consistent stream of income for spending (Basse et al., 2022). For a nation's economy to be sustainable and expand, a good tax administration system is necessary (Okunogbe & Santoro, 2023). Tax administrations may now increase operational efficiency, cut expenses, and streamline procedures; thanks to the development of new technology (Saragih et al., 2023).

One of the biggest problems with tax administration in Nigeria is the poor tax compliance rate. According to an African Development Bank research, Nigeria has one of the lowest tax-to-GDP

ratios in the world, with tax revenues accounting for only around 6% of GDP (African Development Bank, 2024). Among the primary reasons for this low compliance rate are inefficient tax collection practices, a lack of trust in tax authorities, and inadequate enforcement strategies (Okeke et al., 2024; Okunogbe & Santoro, 2023; Belahouaoui & Attak, 2024). Technology, however, has the ability to overcome these obstacles and greatly enhance Nigerian tax administration. Taxpayers may fulfil their tax duties more quickly and easily using technology-driven solutions including data analytics tools, online payment systems, and electronic tax filing (Adelekan et al., 2024; Saragih et al., 2023).

The use of technology in tax administration is becoming more and more common in Nigeria and throughout the world. The Organization for Economic Co-operation and Development (OECD) found that 89% of the countries surveyed have some form of electronic tax filing and payment system in place (OECD, 2021). Furthermore, the study found that the use of technology in tax administration has resulted in significant increases in tax revenues, improved compliance rates, and lower administrative costs (OECD, 2021). Nigeria's e-filing system has significantly increased tax compliance by eliminating the need for in-person submission of forms, according to research, enhancing the effectiveness and precision of tax administration (Adelekan et al., 2024; Olajide et al., 2019).

The Tax Identification Number (TIN) system is another noteworthy technologically advanced approach that Nigerian tax administration has embraced (Okunogbe & Santoro, 2023). Every taxpayer receives a unique identification number through the TIN system, which is required for all national tax transactions. The automation of the TIN system has improved taxpayer identification and monitoring, allowing tax authorities to monitor compliance and identify possible cases of tax evasion (Chiamaka et al., 2021) more quickly. The Nigerian tax agency utilizes data analytics tools to analyse vast data, identify potential tax loopholes, and assess tax risk, enhancing enforcement efficiency (Ajape et al., 2018; Arinze et al., 2018).

Technology in tax administration has shown promising results in terms of revenue collection and compliance, the extent of its utilization and its impact on taxpayers and tax authorities is relatively unknown. This is a research challenge as it prevents the complete comprehension of the function and efficacy of technology in tax administration. Studies have shown that there are significant gaps in the literature. Akinadewo et al.'s (2023) study, for example, looked at the connection between modern tax administration methods and revenue production in a few Nigerian states. Adelekan et al. (2024) contrasted the use of blockchain technology and AI-driven models in the US tax administration, whereas Kamara and Kamara (2024) investigated the advantages and implementation of digital changes in tax administration in Sierra Leone. Studies on digital technology's impact on tax revenue generation and compliance are limited, but there is a need for a comprehensive examination of Nigeria's potential for digital transformation.

The concept of harmonizing tax systems has been promoted in the literature as a means of improving revenue collection and tax administration. According to Adegbe et al. (2022), using an electronic tax management system (ETMS) may result in enhanced tax administration efficacy and efficiency. Olajide et al.'s (2019) study, however, discovered that the establishment of an electronic tax administration system in Nigeria's Ondo State had no appreciable effect on the amount of tax

revenue generated. This implies that Nigerian tax administration may not be optimized by computerized tax systems alone.

The literature primarily focuses on the impact of digital technology on tax administration from the perspective of tax authorities, but limited studies explore taxpayers' experiences. According to Gbemigun and Alade (2024), the use of disruptive technologies in Ondo State, Nigeria's tax filing procedures enhanced the experience of taxpayers. Nevertheless, this survey was restricted to a single state and failed to consider the opinions of taxpayers from other states. The link between digital tax systems and revenue production is the subject of some research (Akinadawo et al., 2023; Adegbe et al., 2022), while others concentrate on the application and advantages of digital innovations in tax administration (Kamara & Kamara, 2024; Adelekan et al., 2024). Research explicitly examining the impact of digital tax administration on tax compliance practices in Nigeria is, nonetheless, lacking. Belahouaoui and Attak's (2024) study is one that approaches filling this gap, although it is far from enough to offer proof of the function of digital technology in tax administration.

Another area that has not received significant attention in the literature is the function of taxpayer education and awareness in encouraging tax compliance behaviour in the digital age. While some studies briefly highlight this element, they do not go into detail on its influence on taxpayer behaviour (Audu & Ishola, 2021; Olajide et al., 2019). The use of digital tax systems may provide new issues for taxpayers, necessitating education and awareness in order to comprehend and adapt to these changes. As a result, it is vital to study the efficacy of taxpayer education and awareness programs in encouraging compliance in the digital era. The aim of the study is to examine the role of technology in tax administration: a case study of Nigeria Revenue Service (NRS).

The general objective of the study is to examine the role of tax education and technology in tax administration by the Nigeria Revenue Service. While the specific objectives are to:

- i. explores the role of taxpayer education and awareness on tax administration by the Nigeria Revenue Service.
 - ii. examine the effect of digital transformation on tax administration by the Nigerian Federal Inland
- These null hypotheses are outline below to guide the study:

The following null hypotheses are specified for the study:

Ho1: There is no significant impact of the taxpayer education and awareness on tax administration by the Nigeria Revenue Service.

Ho2: There is no significant impact of digital transformation on tax administration by the Nigeria Revenue Service

2. LITERATURE REVIEW

Conceptual Review

Tax Administration

Tax administration is the organisation and management of the assessment, collection of, and accounting for revenue accruing to the Federation, Federal, State and Local governments.

It is the set of institutions, rules, systems, and practices for registering taxpayers, assessing, and collecting taxes, enforcing compliance, and providing taxpayer services (legal framework, institutional structure, operations, and taxpayer-facing services). In Nigeria this function is critical to shifting the country away from oil-dependence and improving the tax-to-GDP ratio, but it faces structural and operational challenges that reduce effectiveness (IMF, 2023).

It plays a key role in nation's building and development. Soyode and Ogbonna (2012) see tax administration as the spectrum of procedures employed by the government to manage and carry out its different projects for the welfare of its citizens at various levels of government. The Nigeria Revenue Service collects taxes due to the Federal Government and they are located in the various states of the country; the State Inland Revenue Service is saddled with the responsibility of collecting taxes on behalf of the state government; while the Local Government Revenue Service collects specific taxes for the Local government. These bodies mentioned make up the tax administration bodies in Nigeria. Tax administration is the third and most important activity of taxation process (Obafemi, 2021). An effective tax administration system will lead to an effective tax collection system. When revenue is available, the government will be able to meet up with its responsibility of providing social amenities and infrastructure. Taxes provides the government with the financial resources to embark on specific programmes that would have positive impact on the economic development of the country. In addition, proper administration of taxes would aid redistribution of wealth, lower inequality and promote social fairness (Abiola & Asiweh, 2012). In order for government to be able to effectively administer tax in Nigeria, there is need for proper education of tax payers and the deployment of the appropriate technology that would make the payment of taxes seamless.

Tax Payer Education

Taxpayer education is foundational to improving compliance and unlocking the efficiency gains from Nigeria's ongoing digital tax reforms. Evidence from the Nigeria Revenue Service shows that technology-enabled processes can streamline administration, but their impact depends on informed taxpayers who can navigate e-services and understand obligations (Deshi, Ibilbor, & Paul, 2025; Hassan, 2018). State-level experiences echo this: e-filing and digital outreach in Ondo and Lagos are associated with better revenue outcomes when accompanied by sensitization campaigns and user support (Olajide et al., 2019; Enahoro & Olabisi, 2012; Gbemigun & Alade, 2024). User-centered design, training, and helpdesks raise satisfaction and voluntary compliance, consistent with broader evidence on modernization in tax administration (Indriani, 2019).

Harmonization of tax systems through common taxpayer identifiers, interoperable databases, and aligned procedures across federal, state, and local authorities reduces compliance costs, curbs multiple taxation, and strengthens audit effectiveness (Okunogbe & Santoro, 2023). Coordinated digital standards also deter evasion by enabling cross-agency data matching, while clarifying rules and filing calendars (Olumoh, 2025). Finally, sustained capacity building for tax officials and taxpayers, co-designed with states adopting IT to lift operational performance, can lock in these gains and foster a culture of compliance across Nigeria's federation (Olumoh & Sanni, 2025).

The Nigeria Revenue Service (NRS) is the main tax administration body in Nigeria, responsible for ensuring compliance with tax laws and policies, and collecting revenues on behalf of the

government. In recent years, the agency has increasingly turned to technology to improve its efficiency and effectiveness (Adeyeye, 2019). To make tax compliance simpler and more comfortable for taxpayers, the FIRS has put in place a number of technology-based solutions, including electronic filing and payment systems. Higher compliance rates and more government income have resulted from these technologies' reduction of the administrative load associated with tax compliance (Claasen, 2022; Uford, 2026).

Taxpayer education and awareness are central to fostering voluntary compliance in Nigeria, especially as digital tax reforms expand. Evidence from the Nigeria Revenue Service indicates that technology can streamline administration, but its benefits depend on taxpayers who understand their obligations and can navigate e-services confidently (Desai et al., 2025; Hassan, 2018). State experiences reinforce this point: in Ondo and Lagos, e-filing and digital outreach improved revenue outcomes when paired with sensitization campaigns, user training, and responsive support channels (Olajide et al., 2019; Enahoro & Olabisi, 2012; Gbemigun & Alade, 2024).

User-centered education through clear guidance, practical tutorials, and accessible helpdesks raises satisfaction and reduces errors, translating into higher voluntary compliance, consistent with broader evidence on taxpayer-focused modernization (Indriani, 2019). Sustained capacity building for both taxpayers and frontline tax officials further institutionalizes these gains by improving service quality, building trust, and embedding a culture of compliance over time (Olumoh & Sanni, 2025).

Digital Technology

Technology is reshaping tax administration in Nigeria by improving revenue mobilization, lowering compliance costs, and raising operational efficiency (Indriani, 2019). Core tools include electronic tax systems online portals, mobile apps, and e-filing which cut errors, speed return processing, and ease compliance (Nazarov et al., 2020; Ajape et al., 2018; Etetor, et al., 2026). Data mining and analytics help detect anomalies and potential evasion and improve assessment accuracy (Chiamaka et al., 2021; Okunogbe & Santoro, 2023). Biometric identification (fingerprints, iris, facial recognition) strengthens identity verification, curbs fraud, and enhances transparency (Saragih et al., 2023; Chen et al., 2017; Mohammed et al., 2023). Institutional reforms such as the FIRS taxpayer database, taxpayer identification numbers (TINs), and the Integrated Tax Administration System (ITAS) have streamlined registration, filing, and payments, reduced turnaround for tax clearance certificates and refunds, and supported voluntary compliance while lowering administrative burdens (Adeyeye, 2019; Sani et al., 2021; Ahmadi Zeleti et al., 2021; Agbo, 2022).

Technology also bolsters accountability by limiting corruption and revenue leakages associated with manual processes (Slemrod, 2019; Chen et al., 2017; Saragih et al., 2023). However, a persistent digital divide especially in rural areas risks excluding taxpayers and undermining equity, and over-reliance on digital channels can exacerbate this gap (Gbemigun & Alade, 2024; Lyutova & Fialkovskaya, 2021; Awodun et al., 2018; Ibekwe, 2018). Data privacy and security concerns remain salient, necessitating robust safeguards for taxpayer information (Kamara & Kamara, 2024; Adegbe et al., 2022; Olushola, 2015). Nigerian taxation faces challenges due to over-reliance on technology, particularly in rural areas, which may marginalize certain taxpayers and affect the

system's equality (Ibekwe, 2018). Additionally, data security and privacy are crucial issues, as technology can lead to theft or fraudulent use of taxpayers' information (Kamara & Kamara, 2024; Adegbe et al., 2022; Olushola, 2015). Therefore, strong data protection mechanisms are needed to ensure taxpayers' information security.

Review of Theory

Technology Acceptance Model

The discussion of technology role in tax administration can be anchored on the Technology Acceptance Model (TAM). The Technology Acceptance Model, developed by Davis (1989), posits that perceived usefulness and perceived ease of use determine individuals' willingness to adopt new technologies. In the context of tax administration, FIRS's embrace of ICT such as e-filing, e-payment platforms, and digital tax records aligns with this model. Studies have shown that taxpayers are more likely to comply if they perceive digital platforms as user-friendly and beneficial (Olajide et al., 2019). For instance, the e-Tax platform at FIRS has improved processing times and accuracy, reducing opportunities for human-induced errors and corruption (Hassan, 2018; Sani et al., 2021).

Moreover, disruptive technologies like blockchain and AI have begun to streamline data analysis, taxpayer verification, and enforcement (Saragih et al., 2023). Gbemigun and Alade (2024) demonstrate that technology adoption in Ondo State led to increased voluntary compliance, less paperwork, and a more transparent filing process. However, as TAM predicts, challenges persist when technologies are complex or when stakeholders have limited digital literacy, highlighting the need for capacity building and taxpayer education (Usang & Etim, 2021).

Empirical Review

Odetayo et al. (2025) examined the extent which information technology enhances the efficiency of tax administration in Nigeria. The study employed a survey research design, sampling 154 respondents through structured questionnaire. The data was analysed using descriptive statistics and finds that the application of IT enhances tax administration efficiency.

Onwunyi and Okoli (2025) studied the impact of e-governance on tax management. The study period covered 2015-2023 using questionnaire and interview instruments. The study finds that there is a significant relationship between adoption of e-governance and improvement in tax management in Enugu State.

Deshi et al. (2025) investigated the effect of digital tax reforms on tax administration in Nigeria. A sample size of 383 staff members of FIRS was employed using stratified sampling. The study found that the Taxpayer Identification Number and the Integrated Tax Administration System strengthened tax administration by simplifying taxpayer identification, automating workflows, and improving payment processing. By contrast, the Standard Integrated Government Tax Administration System underperformed, indicating it should be re-evaluated.

Olumoh (2025) in ascertaining the role of digital transformation on tax evasion, using cross sectional survey design, collected data from 499 stakeholders via questionnaire. PLS-SEM analysis revealed that electronic tax identification and electronic tax clearance certification both have a statistically significant positive effect on tax evasion in Kwararthes State.

Also, Onwunyi and Okoli (2025) examined the role of information technology adoption in enhancing the operational performance in tax administration in Osun state. The study surveyed 228 out of 528 Osun State Internal Revenue Service staff, with the sample size derived using Taro Yamane's formula. Data were gathered via a structured questionnaire and analysed with covariance-based structural equation modeling. The analysis produced a path coefficient of 0.913, indicating a strong, statistically significant positive link between information technology and operational performance.

Taken together, the studies emphasize that technology's benefits are mediated by complementary factors staff training, change management, leadership commitment, and legal-regulatory alignment and that uneven digital infrastructure and data-quality constraints can blunt efficiency gains (Odetayo et al., 2025; Olumoh & Sanni, 2025; Onwunyi & Okoli, 2025; Deshi et al., 2025; Olumoh, 2025). They also indicate that integrated, end-to-end solutions linking taxpayer registration, filing, payment, and enforcement yield more pronounced performance improvements than isolated tools, while sustained stakeholder engagement helps translate system rollout into measurable compliance and revenue outcomes. Notwithstanding generally positive associations, the body of work points to the need for stronger evaluation designs and standardized performance metrics to better isolate causal effects and compare results across jurisdictions (Olumoh & Sanni, 2025; Deshi et al., 2025).

3. METHODOLOGY

This study uses a cross-sectional survey approach. The study's population consisted of taxpayers, tax specialists, and Nigeria Revenue Service staff from Edo State, Nigeria. The sample size is 210 respondents, which include 70 taxpayers, 70 tax specialists, and 70 FIRS personnel. Convenience sampling was employed to choose taxpayers and tax experts, whereas purposeful sampling was used to select FIRS personnel. The study employed a quantitative data collection method, specifically an online survey conducted through a Google questionnaire form. The questionnaire was based on a 4-point Likert scale with response criteria ranging from strongly agree to strongly disagree. The reliability coefficient of 0.724 derived, which above the benchmark of .70, indicating that the instrument is dependable for the investigation. Data collected was analysed using the descriptive statistics and regression analysis, with the aid of SPSS 27 and EViews 10.

Presentation and Analysis of Data

A total of 210 respondents were projected for the study, however, a total of 181 were recorded, indicating an 86% return rate, which according to Ebert et al. (2018) is acceptable for inclusion for analysis.

Demographic Analysis of Respondents**Table 1: Demographic analysis of respondents**

Sex		
	No.	%
Male	94	51.9%
Female	87	48.1%
Occupation		
Tax professionals	65	35.9%
FIRS staff	63	34.8%
Tax payer	53	29.3%
Years of experience		
	No.	%
1-5 Years	52	28.7%
6-10 Years	70	38.7%
11-15 Years	38	21.0%
16 & Above	21	11.6%
Educational Qualification		
	No.	%
O'level	36	19.9%
OND/HND	64	35.4%
BSc	43	23.8%
MSc	36	19.9%
PhD	2	1.1%

Source: Field Survey, 2025

Table 1 on sex shows that 51.9% of respondents for the study are male while 48.1% are female. This implies that there is reasonable representation of male and female in the study. In terms of occupation of respondents, tax professionals account for the highest percentage at 35.9%, followed closely by FIRS staff at 34.8%, and tax payers at 29.3%. According to the table, the majority of respondents (67.4%) had at least 5 years of experience, with 38.7% having 6-10 years, 21.0% having 11-15 years, and 11.6% having 16 years or more. Out of the total 181 respondents, 36(19.9%) have O'level, 64(35.4%) have BSc, 43(23.8%) have OND/HND, 36(19.9%) have an MSc, and 2(1.1%) have a PhD.

Analysing Research Objectives

The research objectives for the study were analysed using the descriptive statistics of percentages, mean and standard deviation. The benchmark for the mean is accept at >2.50 and <2.50 is rejected.

Table 2: Responses on digital transformation and optimisation of tax administration

	SA	A	D	SD	Mean	Std. deviation
Nigeria's tax administration is now far more accurate and efficient thanks to digital change.	99 (55%)	69 (38%)	11 (6%)	2 (1%)	3.46	.66256

Errors and fraud in tax collecting and processing have decreased as a result of the adoption of digital technology.	113 (62%)	58 (32%)	6 (3%)	4 (2%)	3.55	.67020
Digital technology use has made it easier and more accessible for taxpayers to fulfill their tax duties.	93 (51%)	64 (35%)	19 (11%)	5 (3%)	3.35	.77949
The management of taxes is now more accountable and transparent thanks to the use of digital tools.	75 (41%)	61 (34%)	28 (16%)	17 (9%)	3.07	.97201
Tax authorities and taxpayers may now communicate and share information more easily thanks to the integration of digital systems.	119 (66%)	52 (29%)	4 (2%)	6 (3%)	3.57	.70074
Both the government and taxpayers have saved money as a result of the simplification of tax administration brought about by the use of digital procedures.	110 (61%)	41 (23%)	30 (17%)	-	3.44	.76246

Source: Field Survey, 2025

The majority of respondents agree as shown in table 2 that digital transformation has greatly increased the accuracy and efficiency of tax administration in Nigeria. That is, reducing errors and fraud in tax collection, increased accessibility and sharing information easily amongst others. Overall, mean scores above 3.0 across all items indicate agreement that digital transformation has optimized tax administration most strongly for improved communication/information sharing (M=3.57) and reduced errors/fraud (M=3.55), with comparatively weaker agreement on transparency/accountability (M=3.07).

Table 3: Responses on the role of tax payer education in promoting tax compliance

	SA	A	D	SD	Mean	Std. deviation
Tax payer education is essential in promoting tax compliance in a digital era in Nigeria.	110 (61%)	52 (29%)	11 (6%)	8 (4%)	3.46	.79909
In a digital world, taxpayers should have access to services and information that will assist them comprehend their tax responsibilities.	102 (56%)	38 (21%)	33 (18%)	8 (4%)	3.29	.91737
Public education on the significance of tax compliance in the digital age should be a top priority for the government.	81 (45%)	26 (14%)	55 (30%)	19 (11%)	2.93	1.08322
In the digital age, taxpayers who are more aware of their tax responsibilities are more likely to abide by the law.	110 (61%)	37 (20%)	25 (14%)	9 (5%)	3.37	.90123
In the digital age, taxpayer-focused educational initiatives and campaigns are successful in raising tax compliance.	116 (64%)	14 (8%)	41 (23%)	10 (6%)	3.30	1.00080
In order to teach future generations, the need of tax compliance in the digital age, taxpayer	130 (72%)	11 (6%)	16 (9%)	24 (13%)	3.37	1.10034

education ought to be incorporated into school curricula.

Source: Field Survey, 2025

The majority of participants in this study strongly believe that tax payer education plays a crucial role in promoting tax compliance in a digital era in Nigeria. Such as, educational initiatives, increased tax compliance and access to services and information.

Overall, the mean scores (mostly >3.3) indicate general agreement that taxpayer education via access to information, awareness, campaigns, and school curricula promotes tax compliance in Nigeria's digital era, with slightly weaker support for making public education a top government priority (mean = 2.93).

Table 4: Responses on factors influencing taxpayers' attitudes and behaviours towards digital technology

	SA	A	D	SD	Mean	Std. deviation
The accessibility of digital tax filing platforms influences tax payers' willingness to use them	111 (61%)	38 (21%)	24 (13%)	8 (4%)	3.39	.87923
The security measures implemented in digital tax systems impact tax payers trust in the system	119 (66%)	33 (18%)	13 (7%)	16 (9%)	3.41	.95959
The convenience of digital tax payment methods influences tax payers' preference for using them	109 (60%)	49 (27%)	14 (8%)	9 (5%)	3.43	.83747
The cost-effectiveness of digital tax filing and payment methods affect tax payer decision to use them	139 (77%)	30 (17%)	10 (6%)	2 (1%)	3.69	.62660
Taxpayers' satisfaction with digital tax systems is influenced by how easy they are to use.	109 (60%)	43 (24%)	19 (11%)	10 (6%)	3.39	.88484
The overall efficiency of digital tax processes influences tax payer attitude towards using technology in tax administration.	114 (63%)	28 (16%)	11 (6%)	28 (16%)	3.26	1.11753

Source: Field Survey, 2025

Table 4 reveals that factors such as cost, security, accessibility, convenience, and user-friendliness are important factors in influencing taxpayers' attitudes and behaviours towards using digital technology for tax purposes.

Overall, the mean scores (all >3.0) indicate general agreement that these factors influence taxpayers' attitudes and behaviours toward digital tax technology, with cost-effectiveness showing the strongest agreement (M=3.69) and overall efficiency the lowest but still positive (M=3.26).

Hypotheses Testing

H₀₁: There is no significant impact between tax payer education and awareness on tax payer compliance in Nigeria.

Dependent Variable: Tax payer compliance

Variable	Coefficient	t-Statistic	Prob.	R-squared	F-statistic
TPEA	0.377268	7.713604	0.0000	0.249475	59.49969

Source: SPSS Output (2025)

TPEA- tax payer education and awareness

The variable TPEA was found to have a positive and significant impact on tax payer compliance, with tax payer compliance is expected to increase by 0.377268. The R-squared value of 0.245282 indicates that the regression model can explain 24.5% of the variation in taxpayer compliance. The null hypothesis of no significant impact between tax payer education and awareness on tax payer compliance in Nigeria is rejected.

H₀₂: there is no significant impact between digital transformation and harmonizing tax systems in Nigeria.

Table 6: Regression result Summary

Dependent Variable: Tax administration

Variable	Coefficient	t-Statistic	Prob.	R-sq.	F-statistic
Digital Transformation	0.275923	5.364065	0.0000	0.138484	28.77319

Source: SPSS Output (2025)

The F-statistic of 28.77319 is statistically significant with a probability value of 0.000000, indicating that the overall model is a good fit for the data. Digital transformation has a positive and significant impact on tax administration (t-statistic = 5.364065, probability = 0.0000). Therefore, the null hypothesis of no significant impact of between digital transformation and harmonizing tax systems in Nigeria is rejected.

4. DISCUSSION OF RESULTS

The study finds that there is a positive attitude and perception towards the use of digital technology in tax administration.

The positive attitude and perception towards the use of digital technology in tax administration is a widely discussed topic in the literature. Digital technology has been demonstrated to have significantly altered tax administration practices in addition to having the potential to improve tax compliance and revenue collection. This outcome is in line with study by Umale et al. (2020), which showed that South Africans viewed the use of digital technology in tax administration favourably overall. The implementation of digital tax solutions in Germany has increased the effectiveness and efficiency of tax administration, according to Claasen's (2022) study.

Digital technology has significantly accelerated and simplified tax compliance procedures, leading to a positive attitude towards it in tax administration. Electronic payment systems and online filing have made it easier for taxpayers to fulfill their tax duties, as supported by studies in Kenya and Nigeria, demonstrating its positive impact on tax compliance (Arinze et al., 2018; Mohammed et al., 2023; Agbo, 2022).

Nevertheless, other research has also revealed conflicting results. According to research conducted in the United Arab Emirates by Chiamaka et al. (2021), taxpayers' positive perceptions and acceptance of digital solutions remained lacking, even in spite of the government's attempts to encourage digital tax administration. Limited access to technology, concerns about data privacy and security, and lack of trust in the government were cited as the main barriers for the negative perception towards digital tax administration. Furthermore, a study by Slemrod (2019) in Austria showed mixed results, where some taxpayers viewed digital tax solutions as beneficial and convenient, while others saw them as complicated and burdensome. This suggests that various taxpayer groups may have varied attitudes and perceptions on the use of digital technologies in tax administration.

The regression analysis found that there is a positive and statistically significant relationship between TPEA and tax payer compliance. Also, the study finds that there is a significant impact between digital transformation and harmonizing tax systems in Nigeria.

Numerous research in the literature supports the conclusion that taxpayer education and awareness, or TPEA, and tax compliance are positively correlated. According to Awodun et al. (2024), public awareness and taxpayer education initiatives significantly improve tax compliance in Nigeria. In a similar vein, Lyutova and Fialkovskaya's (2021) study discovered that taxpayer knowledge and education have a significant role in encouraging tax compliance. This emphasizes how crucial it is to inform and raise taxpayer knowledge in order to increase compliance.

Nevertheless, some studies have shown a weak link between TPEA and tax compliance. For instance, Usang and Etim's (2021) research indicates that while taxpayer education and understanding do have a positive influence on compliance, this effect is not particularly substantial; rather, other variables such as faith in the government and the perceived fairness of the tax system have a higher impact. This suggests that while TPEA has a big impact, it could not be the only factor influencing tax compliance. Furthermore, several studies have found a negative relationship between TPEA and tax compliance. According to Indriani (2019), for instance, taxpayer education can raise expectations for government services while simultaneously enhancing awareness and comprehension of tax laws. This higher expectation, coupled with the perception of government corruption, can lead to dissatisfaction among taxpayers and in turn, affect tax compliance negatively.

In addition to TPEA, digital transformation has also been shown to positively affect tax compliance. According to the present study, digital transformation has a major influence on Nigeria's efforts to harmonize its tax systems. Research by Belahouaoui and Attak (2024) revealed that the use of technology-based tax administration had a beneficial impact on tax compliance, which supports this finding. Furthermore, a Claasen (2022) research discovered that the

application of technology in tax administration has been successful in raising revenue collection and decreasing non-compliance. Studies on the effect of digital transformation on tax compliance, however, have produced conflicting findings. According to Mohammed et al. (2023), technology may encourage non-compliance by providing people with more options to evade paying taxes, even if it may also boost efficiency and transparency in tax administration. This emphasizes how the adoption of digital tax administration must be accompanied by robust enforcement and efficient governance.

5. CONCLUSION AND RECOMMENDATIONS

Taxpayer compliance and tax system harmonization have been demonstrated to be significantly impacted by the Nigeria Revenue Service's use of technology in tax administration. Tax authorities may increase efficiency and accuracy, streamline procedures, and promote taxpayer compliance by utilizing digital technologies. Taxpayer compliance has been proven to benefit from the usage of technology through programs like e-filing and the Taxpayer Identification Number (TIN) system. This is explained by the ease of use, accessibility, and comfort of digital systems, which make it simpler for taxpayers to fulfil their tax responsibilities.

The influence of taxpayer education and the positive attitudes and opinions toward the digital transformation in tax administration further demonstrate the need for and potential efficacy of integrating technology in tax administration. The factors that influence tax payers' attitudes and behaviours towards digital technology in tax administration are that cost, security, accessibility, convenience, and user-friendliness. The study advise that the Nigeria Revenue Service (NRS) should invest in technology to keep up with the rapidly changing landscape. It should also enhance taxpayer education to encourage digital tax compliance. Addressing data security is crucial to protect taxpayers' personal information and build trust in technology use. Improving accessibility and user-friendliness is also essential. Collaborating with tax experts, enterprises, and technology companies can ensure the success of technology in tax administration, allowing for the exchange of best practices and the creation of original solutions.

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