

Information Technology and Tax Intelligence Towards Taxpayers' Database in Nigeria

Prof. John A.M. Agbonika,¹ Prof. Josephine A.A. Agbonika, SAN²

Professor of Law, Kogi State University (KSU), now Prince Abubakar Audu University (PAAU) Anyigba, LL.B (ABU), LL.M (ABU), Ph.D (University of London) BL, FCTI, FIPMD, ACI Arb, FIMC, KSM, JP, Former Commissioner for Justice and Attorney General, Kogi State, Former Special Adviser on Legal and Chieftaincy Affairs, Kogi State, Adjunct Professor 2016-2021, Salem University, Lokoja and Sabbatical 2021-2022, Salem University, Lokoja.

Dean, Faculty of Law, Veritas University, Abuja, Professor of Law Of Taxation, Senior Advocate of Nigeria, (SAN), LL.B (ABU), BL, LLM, (University of London), Ph.D (Uni-Abuja), FCTI, FIPMD, ACI Arb, FIMC, FCAI, LSM, JP; Commissioner, Tax Appeal Tribunal (2010-2016), On leave of absence from Prince Abubakar Audu University, Anyigba (2021 to 2025); Adjunct Professor Salem University Lokoja 2017 to date.

ABSTRACT: Digitalization has taken the center stage in the nation's economic activities and has rendered the existing traditional tax rules and processes ineffective. Consequently, the advent of digital age has been the motivating force of all human activities. Information technology now rules the world giving rise to digital economy, E-commerce, and information technology has brought unprecedented speed and revolution to business transactions thereby changing the face of tax administration in countries. The rapid development of new technology supports the shift in emphasis from tax administrations relying on taxpayer behavior and information as the main focus of tax administration to data-driven operations as the basis for all functions. Data-intensive procedures are now used to close tax gaps and are able to capture tax avoidance or evasion without necessarily increasing the level (rates) or scope of taxation.

This paper seeks to analyse the effect of information technology and intelligence services on tax administration in Nigeria.

Keywords: Tax, Information Technology, tax intelligence

1. Introduction

Tax administrators in Nigeria are confronted with myriads of challenges and difficulties in adapting to the new information technology and digitalization. The problems they face include manual computation resulting in inaccuracies and errors, perennial delay in tax assessments, loss of tax revenue generation due to inadequate taxpayers database, and nontax compliance.¹ Lack of information technology has significant implications on the organization and functioning of any economy and one of the consequence is their impact on taxation. Information technology is the integration of digital technologies into every aspect of tax, including tax administration.² It involves the adoption of digital technologies to modify a business model as it relates to tax administration in all ramifications in line with the global trend. The aim is to create value from the use of

¹ Ifere E, Eko E. Tax innovation, administration and revenue generation in Nigeria: Case of Cross River State. *International Journal of Economics and Management Engineering* 8(5):1603-1609.

² Warren N (2018). Estimating tax gap is everything to an informed response to the digital era. *e-Journal of Tax Research* 16(3):536-577.

advanced technologies, by exploiting digital network dynamics for the benefit of the improved tax generation and ease of tax payments by taxpayers.³

Apart from manual computation, with the associated inevitable errors and delay in form filing, there is also the challenge of lack of comprehensive taxpayers database leading to poor tax compliance, increasing tax evasions, ineffective tax assessment and returns, high level of professional incompetence and unskilled tax administrators, huge reported unethical sharp practices and corruption cases.⁴

Information technology is the process by which companies re-organize their administrative tax work methods and strategies to obtain greater benefits including the implementation of new technologies.⁵ Given the differences in tax laws in different tax jurisdictions and the preferences of countries regarding their tax treaties, this problem slows digitalized tax drive wheel of tax administration in Nigeria. The existing tax laws in Nigeria are either too old, faulty or have some level of limitations which were evidently not put into right perspective at the time of drafting these tax laws.⁶ The current tax regulations are not adequate for companies operating across borders. Statistics show that today, nine (9) out of the top twenty (20) companies in the world capital market capitalization are found to be digitalized.⁷ It is the biggest challenge in ensuring that digital companies contribute fairly to their share of tax revenues.⁸

2. Technology and its Variant

The adoption of technology can bring about successful and sustainable tax reforms, ensure the proper taxation of the digital economy, and reduce the obstacles to compliance. With the COVID-19 pandemic, the provision of online taxpayers' platform and services began to grow.⁹ The COVID-19 pandemic, which led to a boom in the use of digital commerce, made this change especially urgent for tax administrations.¹⁰ The transformation of technology has progressed increasingly over the past decade, as the cost of digital technologies have plunged and powerful tools to develop applications have become more user-friendly. One example of the falling cost can be seen in Cloud storage which is now over 50% cheaper than it was a few years ago.¹¹

The rise of big data is an important factor in the shift because it can allow easy cross-checking of information, which enhances compliance by taxpayers. Overall, global data volume from mobile payment providers, electronic cash registers, online marketplaces, and other digital sources are expected to nearly triple from 2020 to 2024.¹² Digital transformation is also driven by the rapid growth of e-commerce, which is projected to expand by 24% from 2020 to 2025, making it an increasingly important part of the tax base.¹³

The increasing use of cashless payments, through mobile phones and other devices or platforms, are also powering the change. Such payments can be easily reviewed by tax administrations and often leave a digital trail that can be audited. Digitalization makes life easier for authorities by easing the administrative burden, which gives officials more space to focus on higher-value activities. It also allows authorities to simplify procedures and reduce the compliance burden on taxpayers.

³ Santiago-Diaz-De SM (2018). Taxation, information technology of the economy and digital economy Inter-American Center of tax administrations. Tax Studies Research Working Papers 1(1):22-29

⁴ Ayodeji OE. Impact of ICT on tax administration in Nigeria Computer Engineering and Intelligent Systems 5(8):26-29.

⁵ Isiadinso O, Omoju E (2019). Taxation of Nigerian digital economy: Challenges and proposals. Andersen Tax Review 2(2):1-5.

⁶ Gurama Z, Mansor M (2015). Tax administration problems and prospect: A case of Gombe State. International Journal of Arts and Commerce 4(4):187-196.

⁷ Juswanto W, Simms R (2017). Fair taxation in the digital economy, ABD Institute, Policy Brief No.5, <https://www.adb.org/sites/default/files/publication/390261/adbi-pb2017-5.pdf> Retrieved on 10/09/2019

⁸ Ibid

⁹ Bamidele Moses Kuboye. Impact of Covid-19 on internet Traffic in Nigeria. Communications and Network 14, Vol14 No.1 February,2022,pp36-44 Scientific Research Publishing <https://www.scirp.org/journal> pan.

¹⁰ Marcello Estevao. Why tax administrations are embracing digital transformation. Available at <https://blogs.worldbank.org/voices/why-tax-administrations-are-embracing-digital-transformation>

¹¹ Ibid

¹² Ibid

¹³ Ibid

Taxation is likely to look a lot different in the future. Instead of storing huge amounts of taxpayer data, administrations will have access to encrypted, distributed ledgers that allow them capture tax information seamlessly and in real time. This has the added benefit of making tax administrations “less visible” to the public. The decisions of the tax administrations will increasingly be supported and strengthened by artificial intelligence. But the system will need to be closely monitored by experts for errors. Tax administrations could become warehouses for more government data. That will give them a central role in the formulation of economic policy, enabling policymakers to review transactions in the economy and allowing better forecasting. The tax system could become much more user-friendly. Services could include prefilled tax returns, taxpayers’ access to their own filing information, the sharing of data with banks to expedite credit approvals, along with privacy preserving queries on the tax files by researchers and local communities. Tax administrations will streamline the interface between taxpayers and tax officials, by connecting corporate accounting systems with the tax administrations’ e-filing and e-payment platforms.

The next wave is one of consolidation and is characterized by a rapid evolution to implementing new technologies but also a movement away from traditional tax administration processes. Using basic analytics data warehousing, new sources of information can be linked to taxpayers opening up new possibilities for tax administration analysis for the first time. Setting up data-handling rules allows for easier automation of processes. This has led to tax administrations being able to offer taxpayers innovations such as, combining personal tax with social security in personalized dashboards. Although these innovations largely operate the same processes as the pre-digital era, technology has provided greater efficiency and better customer service opportunities for tax administrations.

Tax administrations are compelled to accelerate digitalization and further explore innovative technology solutions. Tax administration reform through digital transformation¹⁴ is a key component to improving tax administration capacity, efficiency and speed in handling the big data flows (in diverse formats) and complex taxpayer activities that are currently in effect today, with the expectation that the scope and frequencies will continue to increase. At the same time, digital transformation applied to tax administrations is an ever-evolving series of enhancements

Monitoring Multinational Tax Practices and Gathering Digital Data.

Artificial intelligence in tax administration is growing increasingly in many countries. Notable countries in Asia and the Pacific that have already included artificial intelligence in taxation include Malaysia and Singapore. Australia, Indonesia, the Republic of Korea, the Maldives, and New Zealand have introduced or are planning to introduce artificial intelligence in tax administration within the Asian Development Banks from 2020.¹⁵ Data analytics are currently used by most tax administrations for selection of tax audit cases and detection of noncompliance. Administrators have begun to apply techniques that identify potentially risky taxpayers or returns by comparing taxpayer data across sectors and segments. Digitized analytical processes are also being used across many tax regimes functions and activities, including tax payment management, revenue management, and taxpayer services. With the increase in data collection mentioned above, it is expected that the use of advanced analytics will further be extended.

In view of the pressures of declining budgets and rising expectations among taxpayers, many tax authorities in different jurisdictions have made efforts to increase the use of online services for taxpayers. Providing taxpayers with a single platform and/or tax application on top of the traditional channels is definitely more cost-effective and provide better experience for taxpayers.

Globally, tax administrations are gathering more digital data. The trend of gathering digital data comes in many different forms, including promoting e-filing, collection of data file, and collection of digital data from intermediaries and other government bodies. This brings to bear the importance of collaboration with other

¹⁴It is important to note here that this point in digital transformation involves the use of new technology and rethinking work processes; however, in general, it does not require policymakers to give control over the risk and audit processes to advanced technology. Changing “mindsets” in tax administration, or specifically, allowing highly subjective processes such as audit and risk assessment to be automated is a key challenge for tax administrators globally

¹⁵Milner, C. and B. Berg. 2017. Tax Analytics—Artificial Intelligence and Machine Learning—Level. 5. <https://www.pwc.no/no/publikasjoner/Digitalisering/artificial-intelligence-and-machine-learning-final1.pdf> (accessed 8 March 2020).

credit revenue agencies under section 8 of the FIRS Act, 2007. In Asia and the Pacific, tax administrations are focusing on promoting e-filing and collection of digital financial statement information. They are actively promoting e-filing in the Association of South East Asian Nations, (ASEAN region).¹⁶ In addition, there is a trend in Asia and the Pacific to adopt extensible Business Reporting Language (XBRL), which is a standardized international format, in collecting financial statement information. Tax authorities in Australia and Singapore are leveraging the same XBRL data collected by the company houses.¹⁷

Research shows that in South Korea, for example, digitalization reduced compliance costs by 19% in the 2011-2016 period.¹⁸ With the implementation of National Digital Identity (NDI) in Singapore, Inland Revenue Authority of Singapore (IRAS) has been able to roll out the “No Filing Service” scheme for individuals, where their tax returns are pre-filled with the data collected by IRAS via NDI.¹⁹

Introducing artificial intelligence in tax administration will also help governments monitor multinational companies’ tax practices more carefully.²⁰

Artificial intelligence is a tool that can process data from different clusters and make judgments without precise commands. Digitalization and Artificial intelligence have gradually begun to transform the entire tax administrative process. Artificial intelligence now helps tax auditors detect errors, classify accounts based on individual and company characteristics, compare tax laws in different jurisdictions with a click, and guide individuals and corporations to select the right laws for tax filing. Artificial intelligence is helping tax auditors save time by enabling them to carry out repetitive and time-consuming processes with a click.²¹

3. Characteristics of Digital Tax Administration

1. Driven by data

Tax administrations are now being bombarded with big data flows, and there is a need to capture, clean, filter, and securely store the data. Data analytics (including artificial intelligence and machine learning algorithms) can address these needs. Data will be used for each tax administrative function. Most countries at all levels of development are constrained or limited by capacity in tax, technology, and data management, it is well documented that this constraint is most severe in developing countries.²²

On the side of the government, limited capacity affects the ability to carry out day-to-day tax administrative operations (including audit). Most tax administrations in the developing world struggle to keep up with the basic sets of taxes namely, income, VAT, and excise, and not assessment, audit, debt collection, and taxpayer service. Added to these tasks, the international tax agenda, including the tax base erosion and profit shifting (BEPS) agenda, implementing tax transparency measures, and now the prospect of digital taxation stretches limited resources even further.²³ Digital transformation solutions are designed to automate or digitize systems, reducing the need for human intervention. However, at the same time, higher skill levels are

¹⁶ ASEAN member states include: Brunei Darussalam, Cambodia, Indonesia, Law PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. <https://www.org/asean-member-states...>

¹⁷ <https://www.adb.org/sites/default/files/publication/792586/digital-tax-administration-transformation.pdf>

¹⁸ Marcello Estrvao op.cit

¹⁹ See Inland Revenue Authority of Singapore (IRAS). 2020. No Filing Service (NFS). Available at <https://www.iras.gov.sg/irashome/Individuals/Locals/Filing-your-taxes/Individuals-Required-to-File-Tax/No-Filing-Service--NFS/>

²⁰ Mohammad Hassan Shakil and Mashiyat Tasnia Artificial Intelligence and Tax Administration in Asia and the Pacific July 2022 DOI:10.4324/9781003196020-4 (pp.45-55). Available at https://www.researchgate.net/publication/361768082_Artificial_Intelligence_and_Tax_Administration_in_Asia_and_the_Pacific

²¹ Ibid

²² Haque, Knight, and Jayasurya (2015) argue that although most countries face limits on capacity, smaller and poorer developing countries perform weakest in public financial management and tend to use outmoded techniques. Also see Haque et al. 2015. Capacity Constraints in Public Financial Management in Pacific States. In Asia and Pacific Policy Studies. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/app5.79>. p.612

²³ Through aggressive tax avoidance, BEPS deprives countries of revenues to fund critical programs and services, including health care, infrastructure and environmental management.

Tax Base Erosion and Profit Shifting- intergovernmental Forum

<https://www.igfmining.org/tax-bas...>

needed to run systems (e.g., for big data management, risk, and taxpayer service). Similar to all limited resources, a choice of how to allocate scarce resources would need to be part of the cost–benefit analysis of a digital transformation programme.²⁴

Related to both capacity and technology is the issue of data availability and access. Tax administrations of the future will be powered by data, and an important driver of efficiency is the ability of a tax administration to use different sources of data as they relate to taxpayers (e.g., beyond tax and invoice filing, banking information, customs information, third-party information for profiling, and adjudicating arms-length pricing). The scarcity of data in developing countries is a common problem due to compliance, administration, and even technological issues and affect the inability to receive, store, and/or protect data.

A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a data base management system (DBMS). Together, the data and the DBMS, along with the applications that are associated with them, are referred to as a database system, often shortened to just database. DBMSs may attempt to *commit* updates, which will make the pending changes permanent. If the commit is unsuccessful, the DBMSs can *rollback* (also called abort) and restore from a *savepoint* clean snapshot of the database tables. A database server typically runs multiple threads (ie, lightweight processes), each capable of altering data. Data within the most common types of databases in operation today is typically modeled in rows and columns in a series of tables to make processing and data querying efficient. The data can then be easily accessed, managed, modified, updated, controlled, and organized.²⁵

The preservation of the integrity of a database system is concerned with the maintenance of the correctness and consistency of the data. In a multi-user database environment this is a major task, since integrity violations may arise from many different sources, such as typing errors by data entry clerks, logical errors in application programs, or errors in system software which result in data corruption.

2. Supported by technology

Developing countries face two different but related types of challenges. First, the tax administration itself may be starting at a low level of technological use (and digital maturity) due to many possible reasons (funding, capacity, strategic priority, or vision). Related to this issue is that, the taxpayer does not, or cannot, use technological solutions to, for example, do e-file returns, invoices, or stream data due to many possible reasons (such as financial resources, capacity, prioritization, or even lack of infrastructure–internet). Thus, even if the tax administration decides to undergo digital transformation, it may be that the source of data (the taxpayer) may not be equipped to participate. Part of the journey would need to include ensuring that taxpayers could participate in the data streaming process.

Processing big data flows quickly, correctly, and efficiently is only possible with integrated technology. Such as:

(a) Data analytics

Algorithms to continuously analyze data and inform decision-making at key vantage points (e.g., registration approval, opening of audits, VAT refunds, tax debt management, and tax disputes), and can use Artificial Intelligence AI and machine learning technology.

(b) Data security and management:

Distributed ledgers (including blockchain) for network data management: when a tax event occurs (e.g. sale or import of goods), the data (e.g., TIN, amount, country of origin, and product code) can be safely preserved real time in an accessible blockchain.

(c) Algorithmic translation of tax codes:

Complex rules contained within tax codes can be effectively translated into algorithms (and smart contracts), reducing discretion and promoting tax certainty.

3. Expanded taxpayer service via digital methods

²⁴Tax Administration Transformation What You Need to Know May 2022 ISBN 978-92-9269-287-2 (print), 978-92-9269-288-9 (electronic), 978-92-9269-289-6 (ebook) Publication Stock No. TCS210343 DOI: <http://dx.doi.org/10.22617/TCS210343>

²⁵What Is a Database? <https://www.oracle.com/database/what-is-database/>

Taxpayer service is becoming a frontline tool of tax administration and its scope is expanded to include the following features:

- a. more active role in compliance management;
- b. guidance on operations and transactions;
- c. interface between taxpayer and many government services; and
- d. enhanced data validation upon submission.

As a result of the global tax agenda (including international tax, digital, global standard compliance), special services are becoming core functions of tax administrations. Expanded special services have emerged in large taxpayer offices and transfer pricing units. In particular, the shift to data and trust-based compliance management program units, ones mentioned have become essential for tax administrative functions.

4. Enhanced transparency and trust

Governance and transparency issues are a challenge in all contexts; however, for developing countries, it is one of the most serious challenges to compliance and hence revenue generation. Digital transformation is aimed at increasing transparency and strengthening governance through “seamless” compliance (data streaming in real time) by design. However, in designing or strengthening procedures and tax treatment around good governance, compliance, and transparency are essential for a successful transformation journey. Establishing digitized systems and platforms to carry out the basic tax functions like tax registration, filing, payment, and dispute resolution could enhance transparency, certainty and processes, to provide assurances that tax payments are deposited in an actual government account, and this eliminates avenues for officials to abuse their discretion.

Implementation of technologies, provides researchers, think tanks, or citizens the ability to independently analyze tax data without having access to personally identifiable information.

A new and good governance architecture is established to address information security risks related to bias and manipulation of algorithms and transparency through open source platforms.

5. Reduced compliance burden

With improved technology, a lot of tax payers try to comply with data filing and provision of information in good time. With over 106 economies using electronic filing systems in 2020, it is expected that the number will double in 2024.²⁶ Digital technology is reducing the time spent paying taxes, as well as the total number of individual payments taxpayers must make each year.²⁷

6. Embedded flexibility

- a. Digitizing administrative processes should accommodate remote working. It should also allow conversion of taxpayer functions to be done virtually (registration, filing, audit, and adjudication).
- b. There is need for rethinking risk function to fully automate.

7. Future-proof

Before planning for a technology road map, it is critical for tax authorities to define its transformation strategies and objectives. When designing strategies, it is important to “future proof”, that is, to ensure the technology implemented would support future requirements. Besides, enterprise-wide data strategy is a key area to consider. Integrated data planning allows efficient use of data across enterprises. A communications strategy and stakeholder management approach should be developed at this stage. This requires;

- a. Ensuring processes, techniques, and technological solutions envisaged for today can be used or built in the future. The digital journey is continuous, not finite.
- b. Future-proof tax administration requires constant training and upskilling the work force.²⁸

4. Benefits of Digital transformation in Tax Administration

²⁶World Bank/PwC. 2020. Paying Taxes. <https://www.pwc.com/gx/en/services/tax/publications/paying-taxes-2020.html>. p. 6.

²⁷ Ibid

²⁸This risk is especially important to note, as tax administration transformations are nonending processes—even if an administration reaches today’s endpoint, technology keeps evolving and tax administration roles will keep evolving.

Tax practitioners are reluctant to rely on machines because of the possibility that a machine will make a wrong decision, given the lack of skills to interpret machine-generated results. Additionally, artificial intelligence requires an expert workforce that understands both coding and tax administration to build machine-readable algorithms. The high establishment costs of adopting artificial intelligence in tax administration, makes it hard for tax authorities to effectively monitor the tax administration process by using machine learning tools. Data analytics and machine learning models help tax authorities detect tax evasion and take necessary actions to impede tax dodging by local and multinational corporations. Artificial intelligence can help tax authorities lessen the costs associated with traditional taxation processes, as the tax collection and filing processes are lengthy and involve complicated paperwork. Some of the benefits of digital transformation are as follows;

- i. Highly efficient revenue collection through optimized and automatic streaming administration of the tax system is enhanced. It also allows capturing a wider tax base, which includes the use of data-based approaches that minimize tax gaps without necessarily increasing tax rates or adding new instruments.
- ii. Enhanced transparency data security and trust through using digital platforms to drive the main tax functions, tax registration, filing, payment, and dispute resolution, to make processes clear for taxpayers, and ensure that all payments are traceable, thereby reducing corruption.
- iii. Minimized compliance burden through implementing digitized, streamlined, direct submission, processing, and assessment, thus reducing time.
- iv. enhanced tax administration efficiency by rethinking the interface with business, especially in supplying compliance data, applying technology to undertake, accelerate, and streamline decision-making processes, such as in assessment and audit through using Artificial Intelligent (AI) machine learning technologies.
- v. advancing growth and other policy objectives beyond but related to tax administration), such as being the nexus between taxpayer and government programs (e.g., in rolling out economic stimulus packages) and becoming the government's data bank, and
- vi. Enhanced taxpayer data to undertake analytics track payment and use of cash transfers, monitor consumption of goods for health, and model taxpayer response to new instruments such as carbon taxes.²⁹

Risks Associated with Digital Tax Administration

One of the approaches towards addressing these risks is to consider seven “synopses” of digitization, all of which need to be communicating with each other to facilitate transformation of optimal risk:³⁰ The following factors pose more challenges to a successful transformation journey as the gap between start and end-states grows wider and deeper. They are:

1. Lack of overall digital strategy:

Transformation initiatives are sometimes implemented piecemeal where a lack of overall strategy results in systems that are not interconnected to each other, low user adoption rates, insufficient data to support data analytics, etc. Stakeholders should participate in discussions of strategy, implementation, and what would be expected of taxpayers (e.g., a new computer system or electronic cash register).

2. Workforce engagement:

Successful transformation initiatives have to be implemented with workforce, operating model, capability, as well as innovative and sustainable design. These are all important building blocks when developing a digital strategy.

3. E-filing adoption rate and data collection mechanism:

²⁹Marcello Estevão. 2020. Why Digital Transformation Matters for Taxation. World Bank Blog.12 June. <https://blogs.worldbank.org/voices/why-digital-transformation-matters-taxation>.

³⁰EY Forbes. 2017. Data & Advanced Analytics: High Stakes, High Rewards.https://i.forbesimg.com/forbesinsights/ey_data_analytics_2017/EY_Data_Analytics_Report.pdf.

The e-filing adoption rate impacts the amount of digital data collected by tax authorities. In Asia and the Pacific, some jurisdictions are facing a relatively low e-filing adoption rate. The availability of data is often one of the dependencies for other transformation initiatives, for example, data analytics and process automation.

4. Change management and enabling processes:

Without a proper change management process, digital transformation is unlikely to have a full internal support. Hence, the system implemented may not be fully used and adopted by the practitioners. Thus, without a change in the processes, the systems are not used in a way it has been designed. In the end, the impact of automation achieved may be less than expected.

5. Close Revenue leakages

Revenue leakage refers to money that has been earned but not collected, by the government agency, generally because of a lack of awareness of the business. It usually results from manual and often faulty finance and accounting processes, such as pricing errors, the use of incompatible invoicing systems, relying on spreadsheets and unbilled or underbilled services. Some types of revenue leakages are industry-specific, while others tend to happen across industries. Revenue leakage is more common in transactions that involve contracts or ongoing customer relationships. Cash transactions in which buyers walk away with goods they have just paid for are less prone to revenue leakage.

Revenue leakage can affect services as well. For example, relying on manually inputting information into spreadsheets, transferring data from spreadsheets to billing and time tracking platforms, and then ensuring the accuracy of time creates administrative work, which may create costs not accounted for when billing.

The financial impact of revenue leakage varies, depending on the industry and the circumstances. A rule of thumb, however, is that companies struggling with revenue leakage have earnings that are 1% to 5% lower as a result.³¹ Thinking of the impact in terms of earnings, as many experts do, is a reminder that when companies bring in revenue that haven't previously been collected it tends to fall directly to the bottom line.³² Complex industries can feel a significantly greater impact. For instance, the complex reimbursement structures, number of parties involved and extent of unpaid bills that are prevalent in the health-care industry may create unique challenges for health-care companies, in terms of collecting earned revenues.

6. Data exchange and domain integrity:

A common way to extend the digital data collection is conducting data exchanges with other monitoring bodies, such as, company houses and stock exchanges. Hurdles faced by tax authorities include data secrecy and data protection regulations. Ideally, the legal framework should support a balance between the interests of taxpayers and those of tax authorities.

Integrity rules may be divided into three 'broad categories:

- i. Domain integrity
- ii. Entity integrity and
- iii. Referential integrity rules

Domain integrity rules are concerned with maintaining the correctness of attribute values within relations. A domain integrity rule therefore, is simply a definition of the type of the domain, and domain integrity is closely related to the familiar concept of type checking in programming languages. The definition of the type of a domain must be as precise as possible in order to avoid violations of domain integrity.

Entity integrity rules

³¹ Eme, Okechukwu Innocent and Chukwurah, D.C. Addressing Revenue Leakages in Nigeria. *Arabian Journal of Business and Management Review (OMAN Chapter)* Vol 5, No.4; November, 2015 pp1-19
<https://www.arabianjbm.com/addressing-reven...>

³² Levinus Nwabughio. Nigeria Losing \$30bn annually from Revenue Leakages-Rep. *Vanguard Nigeria*.
[www.vanguardngr.com/Nigeria-Losing-\\$30bn...](http://www.vanguardngr.com/Nigeria-Losing-$30bn...)

Entity integrity rules relate to the correctness of relationships among attributes of the same relation (e.g. function: dependencies) and to the preservation of key uniqueness.

It is the requirement of entity integrity rules that all entries are unique and no null entries are made in a primary key.

The purpose of entity identity rules is that it guarantees that each entity will have a unique identity.

Referential integrity rules: These are concerned with maintaining the correctness and consistency of relationships between relations.

The requirement of Referential integrity rules is that foreign key must have either a null entry or an entry that matches the primary key value in a table to which it is related.

7. Exchange of Information with Relevant Authorities

Exchange of information is about achieving global tax co-operation through the implementation of international tax standards and other instruments to put an end to bank secrecy and tackle tax evasion.³³ The Global Forum is a key international body working on the implementation of international standards on tax transparency. It ensures that these high standards of transparency and exchange of information for tax purposes are in place around the world through its monitoring and peer review activities. The relevant bodies that can exchange information with tax authorities include banks, corporate affairs commission, Nigeria Police Force, Securities and Exchange Commission among others. Some of these are discussed hereunder,

Security and Exchange Commission (SEC)

The Securities and Exchange Commission (SEC) is the main regulatory institution of the Nigeria capital market. It is supervised by the Federal Ministry of Finance.³⁴ SEC's mission is to develop and regulate a Capital Market that is dynamic, fair, transparent and efficient, to contribute to the nation's economic development.

In regulating the market, the Commission undertakes the following activities in order to protect investors, market operators and also ensure market integrity. Regulation is carried out through deployment of the following tools:

- (a) **Registration** of securities and market intermediaries to ensure that only fit and proper persons or institutions are allowed to operate in the market. Instruments and persons registered in the market are:
 - i. Securities/Commodity Exchanges/Capital Trade Points
 - ii. Futures, Options and Derivatives Exchanges
 - iii. Depository, Clearing and Settlement agencies
 - iv. Capital Market Operators include,
 - Issuing Houses
 - Securities dealers/Stock brokers/Sub-brokers
 - Registrars/Transfer agents
 - Trustees
 - Reporting Accountants
 - Solicitors
 - Investment Advisers etc.
 - v. Securities:
 - i. Equities
 - ii. Debentures
 - iii. Debt instruments
 - vi. Collective investment schemes
- (b) **Inspection** is either done "onsite" or "off-site". The Commission, at regular intervals, calls for information from capital market operators. It also undertakes and conducts inquiries and audits of any participant in the market whenever necessary.
- (c) **Surveillance** is carried out over exchanges and trading systems to forestall breaches of market rules as well as deter and detect manipulations and trading practices which are capable of causing market disruption.
- (d) **Investigation** of alleged breaches of the laws and regulations governing the capital market and enforcement of sanctions where appropriate.

³³<https://www.oecd.org/ctp/exchange-of-tax-information/>

³⁴[https://en.wikipedia.org/wiki/Securities_and_Exchange_Commission_\(Nigeria\)](https://en.wikipedia.org/wiki/Securities_and_Exchange_Commission_(Nigeria))

- (e) **Enforcement** actions are taken against market operators who are found wanting after investigation is carried out. In minor cases, an all parties meeting is convened by the Commission where it mediates between parties involved in a dispute. However, if the case is serious or where no resolution is reached as to where or a party fails to comply with a directive given at the all parties meeting, the defaulting party will be called before the Administrative Proceedings Committee (APC), which is a quasi-judicial court, with only civil jurisdiction. Appeals against decisions of the APC are usually made at the Investment and Securities Tribunal (IST).³⁵ Enforcement action may be in the form of payment of fine, ban, suspension or even forwarding the case to the Nigeria Police Force (NPF), Economic and Financial Crimes Commission (EFCC) or the Attorney – General of the Federation (AGF) where allegations are found to be criminal in nature.
- (f) **Rule making** by the Commission may be involved as developments occur. This is to ensure that the Commission meets up with international best practices.

The Nigerian Communications Commission (NCC)

The Nigerian Communications Commission (NCC) is the independent regulatory authority for the telecommunication industry in Nigeria.³⁶ The NCC was charged with the responsibility of regulating the supply of telecommunications services and facilities, promoting competition, and setting performance standards for telephone and communication service in Nigeria.³⁷

The Powers of the Nigerian Communications Commission is derived from Section 3 of the Nigerian Communications Act (NCA) of 2003 which permits,

- i. Giving written directions to licensees.
- ii. Consulting with consumers, commercial and industrial organizations.
- iii. Delegating its functions to a committee constituted by it.
- iv. Summoning persons to appear before the commission.
- v. Entering into contracts with any company, firm or persons.
- vi. Establishing and maintaining subsidiaries to enable the discharge of its functions.

With regard to licensing, the NCC has been granted powers including the following:

- i. Issuance of licences and imposition of terms and conditions on licences.
- ii. Variation or revocation of a condition of licence.
- iii. Consulting with affected licensees before bringing into force an obligation which may be onerous on the licensee.
- iv. Approving guidelines for keeping of accounts and cost allocation formula of licensees.
- v. Inspection of licensees' books of accounts.
- vi. Granting or revoking of permits for connection of customer equipment.
- vii. Determination of principles to guide interconnection arrangements between operators.
- viii. Determination of services and new undertakings eligible for licensing from time to time.

Nigerian Police Force (NPF)

The Nigeria Police Force is the principal law enforcement and the leading security agency in Nigeria. In September 2020, the National Assembly repealed the Police Act, 2004³⁸ and brought the Nigeria Police Act of 2020. The new Act provides for a more effective and well organized Police Force, driven by the principle of transparency and accountability in its operations and management of its resources. It also addresses the challenges of structuring, appointments, promotions, discipline, postings, living conditions, pension and retirement benefits of the Nigeria Police Force

³⁵ The Investment and Securities Tribunal (IST) is a dedicated fast track civil court established pursuant to Section 274 of the Investment and Securities Act 2007, for the resolution of disputes in the Nigerian Capital Market. <https://www.ist.gov.ng>

³⁶ The NCC was created under Decree number 75 by the Federal Military Government of Nigeria on 24 November 1992.

³⁷ The Decree has been abrogated and replaced with the Nigerian Communications Act (NCA) 2003.

³⁸ Cap. P19 Laws of the Federation 2004

5. Conclusion

Tax administration must develop scalable and uninterrupted systems that can be used across departments. Tax administrations are enjoined to accelerate digitalization and further explore innovative technology solutions to address unprecedented opportunities and challenges. The corona virus disease (COVID-19) pandemic and the ensuing economic crisis have created a unique, time-sensitive opportunity for governments to act on these initiatives with greater urgency. There is need for tax administrations to respond to the changing technological landscape to meet the expectations of taxpayers, as well as to maintain security and improve their efficacy. A proper legislative basis for digitalization must be established. For example, by including the legal status of digital records in court, the necessary powers to require digital filing, and a legislative basis for digital identity. Without a proper legal basis for the collection of information, the use of electronic data as evidence and the requirement for data to be supplied in a given format, taxpayers will lack the certainty that they need to plan their compliance activities and may resist or refuse to comply with the requests of authorities. Reform should aim to change the culture from managing processes to managing data, and administrations should focus on getting the right data.

6. References

1. Ajala Michael O.O. and Adegbe F.F. Effects of Information Technology on Effective Tax Assessment in Nigeria. *Journal of Accounting and Taxation* Vol. 12(4), pp. 126-134, October-December 2020 https://www.researchgate.net/publication/347162787_Effects_of_information_technology_on_effective_tax_assessment_in_Nigeria
2. Ifere E, Eko E. Tax innovation, administration and revenue generation in Nigeria: Case of Cross River State. *International Journal of Economics and Management Engineering* 8(5):1603-1609.
3. Warren N (2018). Estimating tax gap is everything to an informed response to the digital era. *e-Journal of Tax Research* 16(3):536-577.
4. Santiago-Diaz-De SM (2018). Taxation, information technology of the economy and digital economy Inter-American Center of tax administrations. *Tax Studies Research Working Papers* 1(1):22-29
5. Ayodeji OE. Impact of ICT on tax administration in Nigeria *Computer Engineering and Intelligent Systems* 5(8):26-29.
6. Isiadinso O, Omoju E (2019). Taxation of Nigerian digital economy: Challenges and proposals. *Andersen Tax Review* 2(2):1-5.
7. Obe PA (2019). Digitalisation of tax: International perspectives. *Institute of Chartered Accountant of England and Wales Journal Review* 1(1):1-12.
8. Gurama Z, Mansor M (2015). Tax administration problems and prospect: A case of Gombe State. *International Journal of Arts and Commerce* 4(4):187-196.
9. Juswanto W, Simms R (2017). Fair taxation in the digital economy, ABD Institute, Policy Brief No.5, <https://www.adb.org/sites/default/files/publication/390261/adbi-pb2017-5.pdf> Retrieved on 10/09/2019.
10. Bamidele Moses Kuboye. Impact of Covid-19 on internet Traffic in Nigeria. *Communications and Network* 14, Vol14 No.1 February, 2022, pp36-44 Scientific Research Publishing <https://www.scirp.org/journal> pan.
11. Marcello Estevao. Why tax administrations are embracing digital transformation. Available at <https://blogs.worldbank.org/voices/why-tax-administrations-are-embracing-digital-transformation>
12. Mohammad Hassan Shakil and Mashiyat Tasnia Artificial Intelligence and Tax Administration in Asia and the Pacific July 2022 DOI:10.4324/9781003196020-4(pp.45-55). Available at https://www.researchgate.net/publication/361768082_Artificial_Intelligence_and_Tax_Administration_in_Asia_and_the_Pacific.
13. World Bank/PwC. 2020. Paying Taxes. <https://www.pwc.com/gx/en/services/tax/publications/paying-taxes-2020.html>. p. 6

14. Marcello Estevão. 2020. Why Digital Transformation Matters for Taxation. World Bank Blog.12 June. <https://blogs.worldbank.org/voices/why-digital-transformation-matters-taxation>.
15. EY Forbes. 2017. Data & Advanced Analytics: High Stakes, High Rewards.https://i.forbesimg.com/forbesinsights/ey_data_analytics_2017/EY_Data_Analytics_Report.pdf
16. Eme, Okechukwu Innocent and Chukwurah ,D.C. Addressing Revenue Leakages in Nigeria. Arabian Journal of Business and Management Review(OMAN Chapter) Vol 5, No.4; November, 2015 pp1-19<https://www.arabianjbm.com/addressing-reven...>
17. Levinus Nwabughio. Nigeria Losing \$30bn annually from Revenue Leakages-Rep. Vanguard Nigeria.[www.vanguardngr.com/Nigeria-Losing-\\$30bn...](http://www.vanguardngr.com/Nigeria-Losing-$30bn...)
18. <https://www.oecd.org/ctp/exchange-of-tax-information/>
19. [https://en.wikipedia.org/wiki/Securities_and_Exchange_Commission_\(Nigeria\)](https://en.wikipedia.org/wiki/Securities_and_Exchange_Commission_(Nigeria)).

INFO

Corresponding Author:Prof. Josephine A.A. Agbonika, San,Professor of Law, Kogi State University (KSU),now Prince Abubakar Audu University (PAAU)Anyigba, LL.B (ABU), LL.M (ABU), Ph.D (University of London) BL, FCTI, FIPMD, ACI Arb, FIMC, KSM, JP, Former Commissioner for Justice and Attorney General, Kogi State, Former Special Adviser on Legal and Chieftaincy Affairs, Kogi State, Adjunct Professor 2016-2021, Salem University, Lokoja and Sabbatical 2021-2022, Salem University, Lokoja.

How to cite this article:Prof. Josephine A.A. Agbonika, San, Prof. John A.M. Agbonika, “Information Technology and Tax Intelligence Towards Taxpayers’ Database in Nigeria”,Asian. Jour. Social. Scie. Mgmt. Tech.2023; 5(4): 82-93.