Digital Technology Application in Tax Administration: An Analytical Study of International Experiences in the Era of Digital Transformation

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Received: 22/02/2024 *Accepted: 23/09/2024* *Published:30/09/2024*

Abstract:

This research examines the mechanisms of digital transformation in tax administration adopted by various countries, focusing on their evolution through different stages and their impact at the international level. The study employed a descriptive approach and case study method to examine the utilization of digital technology in tax administration in countries such as Brazil, Kenya, Russia, and the United Kingdom Results show that digital technology is fundamentally changing how taxes are reported and paid, whether in digitally advanced governments seeking to expand and automate their interconnected tax systems, or less developed authorities attempting to transition to digital transformation.

Keywords: Digitization; digital technology; taxpayers; experiments; challenges.
Jel Classification Codes: L86, O31, H21, C93, O38.

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1. INTRODUCTION

In recent decades, the digital revolution has transformed nearly every facet of modern society, and the realm of tax administration is no exception. The adoption of digital technologies has fundamentally reshaped how governments collect revenues, enforce compliance, and manage taxpayer interactions. This transformation, often referred to as digitalization or digital transformation, encompasses the use of information and communication technologies (ICTs) to streamline processes, enhance data management, and improve overall efficiency in tax administration (Rai, 2020, p. 1681), The role of tax administration has changed significantly over the past decade, and the pace of change has accelerated dramatically in recent years due to the development and implementation of new technologies and the application of technology to tax administration functions and processes. Tax administrations are rapidly adopting digital technologies and exploring innovative solutions to improve efficiency, reach, and accountability. These technologies are crucial for all core operations, including registration, filing, payment, auditing, and collection, though their use varies by development level and tax types (Nose and Mengistu, 2023, p. 2).

1.2 Problem Statement

Building on the above, we have formulated the following research question: **How can tax administrations effectively leverage digital technologies to enhance efficiency, compliance, and service delivery while addressing the challenges associated with digital transformation?**

1.3 Study hypotheses

Digitizing tax administration offers an innovative alternative to traditional management models, serving as an effective means to enhance communication and build trust between tax authorities and taxpayers. This shift reflects the trends of modern times in tax management, aiming to improve the quality of tax services and facilitate interaction with taxpayers**.**

1.4 Objectives of study

The main objective of the study is to present pioneering experiences in the field of applying digital technology in tax administration, from countries with distinguished expertise in this field, followed by a review of recent experiences in this context, with a focus on the mechanisms adopted within the digital transformation framework.

1.5 The importance of Study

This study provides a comprehensive analysis of digital transformation in tax administration globally. By exploring the shift from manual to digital systems and showcasing diverse case studies, it offers valuable insights into effective strategies, benefits such as enhanced efficiency and compliance, and implementation challenges. These findings can guide countries at various stages of digital transformation in developing informed policy and implementation strategies.

1.6 Methodology

A descriptive approach was employed to address the study's inquiry and to understand the evolution of tax administration processes: From Manual to Digital Enterprise. The case study method was adopted to examine the utilization of digital technology in tax administration in Brazil, Kenya, Russia, and the United Kingdom.

1.7 Research Design:

Comparative case study analysis of four countries: Brazil, Kenya, Russia, and the UK ;

Analytical review of international experiences in tax administration digitalization.

2. Evolution of Tax Administration Processes: From Manual to Digital Enterprise

No tax authority is immune to the need to modernise its operations. Across countries, tax administrations are currently at different stages on the journey towards a full digital transformation. The three stages of progression from a traditional paper-based tax administration to a fully-fledged digital enterprise are known as Tax Administration 1.0, Tax Administration 2.0, and Tax Administration 3.0 (NTO, 2023):

2.1 Tax administration 1.0: The Era of Manual and Paper-based Processes

Tax Administration 1.0 denotes the conventional method of tax management, marked by manual procedures reliant on paper documentation. In this phase, taxpayers submitted their tax details in hard copy, and tax authorities manually handled and assessed these submissions. However, this manual system frequently led to delays, inaccuracies, and inefficiencies. Additionally, managing substantial data volumes was challenging within paper-based frameworks (NTO, 2023).

2.2 Tax administration 2.0: Leveraging Digital Tools and Data-driven Approaches

To address the constraints of Tax Administration 1.0, Tax Administration 2.0, also referred to as "e-administration," arose. This stage focused on utilizing digital technologies and data-driven methodologies to enhance tax administration procedures. Tax agencies began implementing electronic filing systems, enabling taxpayers to electronically submit their returns. Additionally, online platforms for tax payments and transactions were introduced, providing taxpayers with convenient online avenues to fulfill their tax responsibilities (NTO, 2023).

During Tax Administration 2.0, tax authorities started employing analytic tools and algorithms to detect high-risk taxpayers and manage data processing. Partnerships between tax agencies and other governmental bodies were established to enable the sharing of data and information, enhancing compliance endeavors. Although Tax Administration 2.0 yielded substantial enhancements for tax administrations, it had yet to fully leverage the capabilities of digital technologies (NTO, 2023).

2.3 Tax Administration 3.0: Integrating Tax Processes into Taxpayers Digital Ecosystems

The shortcomings observed in Tax Administration 2.0 led to the development of Tax Administration 3.0. This new phase envisions taxation seamlessly integrated into taxpayers' digital environments. Through connectivity with the platforms businesses employ for operations, transactions, and communication, tax administrations can substantially

lessen compliance burdens and improve accuracy (NTO, 2023).

Tax Administration 3.0 underscores the significance of secure and streamlined communication channels between taxpayers and tax authorities to facilitate prompt information exchange, inquiries, and dispute resolutions. Nonetheless, these enhancements and additional features also bring about challenging implications (NTO, 2023).

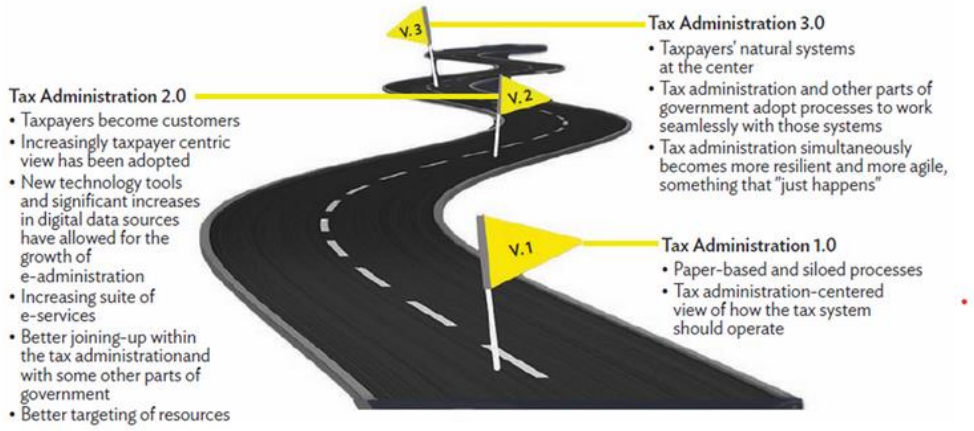
The OECD Forum on Tax Administration devised a framework outlining the digital transformation journey of tax administrations, This framework delineates (ADB, 2022, p. 2):

"Tax Administration 1.0" a paper-based tax administration, traditional functions;

"Tax Administration 2.0" an e-administration, where most of the functions are digitized, although the fundamental processes are the same (but faster and more efficient); and

"Tax Administration 3.0" represents a paradigm shift, where the taxpayer and tax administration systems are interconnected, where compliance is automatic and seamless, and where traditional decision functions are done by technology.

Fig.1 OECD Characterization of the Evolution of Tax Administration.



Source: (ADB, 2022, p. 3)

The modernization of tax administration has shifted from traditional paper-based methods to a more digitalized approach, leading to enhanced

efficiency according to the OECD (2020). The outdated paper-based system was deemed inefficient, relying heavily on user-provided data and being slow and costly. Tax Administration 2.0 has ushered in a range of digital advancements such as faster and more dependable tax payment services, improved reporting systems, expanded third-party reporting capabilities, and increased detection of tax non-compliance. However, this transition also comes with challenges, including a significant dependence on voluntary disclosure, substantial costs, and a steep learning curve for understanding tax calculations and reporting requirements, necessitating significant adjustments (Dhaliwa et at , 2023, p. 56).

The anticipated conclusion at present is a completely digitized and automated tax administration driven directly by taxpayer input, where data is collected, processed, refined, compared, and stored for risk evaluation, audits, legal proceedings, and other procedures (Dhaliwa et at , 2023, p. 56).

The COVID-19 pandemic and resulting economic downturn have hastened the reassessment of the tax administration's role and strategic contemplation on its transformation to meet future objectives. Tax administrations in operation encountered the following challenges (ADB, 2022, p. 5):

- Significant declines in revenue due to reduced economic activity;
- Substantial revenue decreases caused by stimulus measures, which eased tax administration through deferrals, exemptions, and reductions (e.g., value-added tax); interruptions in data and documentation collection (e.g., transfer pricing); and delays in processing returns;
- In regions like Asia, particularly within the Association of Southeast Asian Nations (ASEAN), reluctance to increase tax rates or introduce new measures during the recovery phase due to concerns about competitiveness and economic growth;
- Transition to remote work, posing challenges to traditional tax functions, notably audit processes.

Furthermore, tax administrations were assigned new responsibilities, including establishing channels for taxpayers to access stimulus programs

and benefits. Tax authorities utilized innovative technologies for payment tracing, tracking, and conducting analytics on taxpayer activities during the pandemic. These additional duties have broadened the scope of tax administrations mandates (ADB, 2022, p. 5).

- **What do we mean by digitization?**

In this article, we use the term **" digitization "** to refer to a complete reimagining of tax processes using digital means, as opposed to simplified technology that merely converts traditional records and forms into digital formats.

We are witnessing a remarkable and rapid evolution in the field of digital technology and innovation. From a global perspective, the most important technologies today include artificial intelligence, Internet of Things (IoT), 5G technology, big data processing and analytics, cloud computing, and blockchain technology(ÚPVII, 2019, p. 11), New technological trends, including artificial intelligence, machine learning, the Internet of Things, and cloud computing, pose a major challenge for effective reform of tax administration services (Güneş, 2019, p. 2)

The rapid evolution of digital technologies brings opportunities for new ways to achieve this goal. Digitalisation offers prospects to revolutionise the way that a tax administration communicates with taxpayers and processes information. In turn this can facilitate new operating models that can make tax systems more accessible, efficient and seamless for both taxpayer and administration (OECD, 2021, p. 17). Digitalization of tax administration refers to a comprehensive system for effectively collecting and managing abundant and complex data to leverage them for better taxation, while protecting taxpayers from abuse. It reduces operating costs by helping taxpayers save time and money associated with compliance and enabling tax authorities to collect revenue and detect fraud at minimal administrative cost (Jae-jin et al, 2022).

It's crucial to understand that the process of digitizing a tax administration isn't a straightforward path, where predefined steps are followed in a specific sequence to achieve a predetermined outcome.

Instead, the journey towards digitalization for a tax administration varies based on its initial circumstances and specific priorities. Additionally, it's important to acknowledge that digitalization isn't a universal remedy capable of solving all the problems faced by administrations (OECD, 2021, p. 17).

2.4 Managing Risk Throughout the Digital Transformation Process

In the process of digitizing tax administration, thorough planning, a well-defined vision, and efficient execution are crucial elements.

2.4.1 Identified Risks: To date, the following issues have been identified in transformations of tax administration (ADB, 2022, p. 22):

- **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;
- **Workforce engagement:** Successful transformation initiatives have to be implemented with workforce, operating model, capability, and innovative and sustainable design. These are all important building blocks when developing a digital strategy;
- **E-filing adoption rate and data collection mechanism**: 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;
- **Data exchange:** A common way to extend the digital data collection is conducting data exchanges with other monitoring bodies, for example, company house 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;
- **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 is less than exp. (ADB, 2022, p. 22)

3. Implementing Digitalization Strategies: International Experiences

Tax authorities globally are undergoing swift digital transformations. The enhanced functionalities of contemporary IT in extracting, processing, and handling data are prompting tax administrators to embrace novel methods to streamline taxation, rendering it more efficient, impactful, and transparent (Dhaliwa et at , 2023, p. 55)**.**

3.1 Case study of Brazil

In order to address significant levels of unreported economic activity and tax evasion, Brazilian authorities have introduced a universal mandatory electronic invoicing and reporting system, utilizing the Nota Fiscal eletrônica (NF-e). Under this system, an NF-e form is required for every taxable transaction and must be promptly submitted to the tax authority for validation in real-time. Additionally, shipments in transit must be accompanied by documentation confirming completion of this electronic reporting process (ICAEW, 2022, p. 7).

The administration of federal taxes in Brazil falls under the responsibility of the Receita Federal do Brasil (RFB), although there are also taxes levied at the state and municipal levels. Brazil's tax system is recognized as one of the most intricate globally, with over 60 different types of taxes collected and thousands of regulations in place. According to the World Bank and PwC's Paying Taxes 2020 report, Brazil is ranked as the most challenging country in terms of tax compliance. Despite various reforms and enhancements, there has been a notable reduction in the time required to fulfill tax obligations in Brazil, with the report estimating a decrease of approximately 1,100 person-hours per year from 2004 to 2020. However, the average time needed for a medium-sized company to fulfill its tax obligations still stands at around 1,500 person-hours per year (ICAEW,

2022, p. 17).

PROFISCO played a pivotal role in Brazil's digital transformation by facilitating the automation of administrative regulations, which included the electronic execution of all tax dispute procedures. In addition to e-invoicing, PROFISCO enabled companies to digitize their accounting records. Consequently, the Brazilian government now has the capability to electronically access a company's records and verify that the taxes paid align with the invoicing throughout the tax period. The adoption of PROFISCO has led to streamlined administrative processes, increased tax collection, and reduced tax compliance costs for both businesses and the government (Dhaliwa et at , 2023, p. 67).

- DIGITALISATION

In a bid to combat corruption, expand tax coverage, and enhance the country's investment appeal, Brazilian authorities have significantly digitized their tax infrastructure. Firms must adhere to a standardized chart of accounts for their financial records and provide detailed transaction-level data on their accounting and taxable transactions. This comprehensive data aids authorities in their compliance efforts, leveraging data analytics for informed decision-making (ICAEW, 2022, p. 17)**.**

Another notable component of the Brazilian system is the Nota Fiscal eletrônica, an electronic invoicing system introduced gradually by economic sector starting in 2009. This mandates that all B2B and a significant portion of business-to-consumer (B2C) transactions utilize one of several standardized electronic invoice formats, which are submitted through a government portal. This ensures immediate visibility of transactions to the Receita Federal do Brasil (RFB), which subjects them to an automated approval process before being transmitted to the buyer (ICAEW, 2022, p. 17).

One significant initiative aimed at detecting unreported sales for VAT purposes in certain Brazilian states involves implementing a minor VAT rebate. This rebate is issued to customers when their purchases are reflected in a VAT return. By offering this incentive, individuals are incentivized to report to the tax authority if their purchase goes unrecorded, effectively

mobilizing a group of informal tax inspectors (ICAEW, 2022, p. 17).

3.2 Kenya Case Study

Kenya has experienced significant advancements in tax administration following the implementation of the M-PESA platform by Safaricom. Prior to its introduction, the country was well-prepared for the adoption of modern technology, as a large portion of the population aged 15 and above had access to mobile phones and other mobile devices. Consequently, many individuals were already familiar with mobile technology, including sending text messages and making phone calls. This familiarity facilitated a seamless transition for much of the population when the M-PESA platform was introduced, as text messaging was a requirement for fund transfers (Dhaliwa et at , 2023, p. 64).

Prior to the creation of the M-PESA platform, there was a significant focus on comprehending the needs and preferences of the Kenyan population, rather than solely promoting the platform. Safaricom recognized the platform's primary advantage as the convenience it offered in enabling individuals to transfer money via mobile devices, thereby reducing the necessity to carry physical cash (Dhaliwa et at , 2023, p. 64).

In October 2005, Safaricom initiated an M-PESA pilot program in Kenya, which involved opening multiple stores and engaging over 500 participants across three domestic locations. The primary objective was to establish trust between agents and customers, particularly concerning the withdrawal of funds, as instructions were transmitted via text message (Dhaliwa et at , 2023, p. 64).

During the initial stages of the pilot program for M-PESA, training emerged as a significant challenge for Safaricom, as agents needed to comprehend various aspects of the platform to assist customers with inquiries and technical issues. To address this, extensive resources were allocated weekly, coupled with ongoing training on platform operations, to ensure agents maintained a thorough understanding of the system and provided satisfactory service to customers. Consequently, trust between customers and agents significantly improved, resulting in millions of Kenyan shillings being transferred through the platform. This success

prompted Vodafone Group and Safaricom to expedite the platform's launch (Dhaliwa et at , 2023, p. 65).

- DIGITALISATION

In the past two decades, Kenya has transitioned from a highly manual and paper-dependent tax system, involving frequent visits to physical tax offices, to a progressively digitized one. The previous system was inefficient and lacked proper tracking of filing activities. Compliance enforcement mainly relied on phone calls, resulting in low levels of compliance, particularly among smaller businesses (ICAEW, 2022, p. 21).

The digitalisation process started slowly, with the KRA asking tax inspectors to use their own devices to complete their work, but it has since grown and become more formalised, with a portal called iTax launching in 2014. Now much of tax administration and especially audits have become electronic and data focused. As well as increasing oversight and compliance, this has also eased filing for taxpayers and the volume of paperwork needed has decreased dramatically (ICAEW, 2022, p. 21).

There is usually no need for employed individuals to interact with the system as it is covered by PAYE, but the portal does allow employees to check that their employer is filing their taxes correctly. Digitalisation has also increased business confidence in areas such as imports, where previously rules around duties were unclear and were applied somewhat arbitrarily, and two identical consignments could be taxed differently depending on the border agent’s judgement. (ICAEW, 2022, p. 22).

The KRA has also integrated M-Pesa into its systems, accepting payments through the service, which automatically generates proofs of payment. M-Pesa and its peers have driven a rapid formalisation of the Kenyan economy, with entrepreneurs and market traders alike now able to easily access payments processing systems as well as short-term credit. The increased visibility of commerce has helped the authority to track and tax these activities (ICAEW, 2022, p. 22).

Kenya prides itself on being more digitally advanced than many of its African peers, and there has been encouraging focus on modernisation from the government. The country has both learned from its neighbours and

provided an example for them, and competition in the region has helped to drive developments in digital administration. Plans are in place to require electronic invoicing from mid-2022. (ICAEW, 2022, p. 22).

3.3 Russia case study

The OECD (2020) suggests that as the global economy becomes more digital, there's a need for updated tools to aid the tax system. The Federal Tax Service of Russia plans to integrate several cutting-edge technologies, such as Digital Identity (DI), Blockchain, Cloud computing, Big Data analytics, Artificial Intelligence (AI), Robotic Process Automation (RPA), and the Internet of Things (IoT), to adapt to these change, Unusually for a developed nation, the Russian economy is dominated by natural resources, which make up around 60% of GDP and over a third of government revenues. The tax system is relatively simple, with a flat income tax rate, having started from a blank slate after the end of the Soviet Union (ICAEW, 2022, p. 26).

Currently, the Russian Federation is prioritizing digital identity initiatives for the upcoming years, focusing on leveraging cryptocurrency and other crypto-related aspects to bolster system authentication security. This entails refining legal frameworks, enhancing electronic signatures, and upgrading information technology (IT) systems. These efforts aim to foster trust between taxpayers and tax authorities, thereby promoting voluntary compliance with taxation regulations (Dhaliwa et at , 2023, p. 63). As of February 2022, the Federal Tax Service of Russia has granted certain taxpayers the ability to e-file directly to tax authorities, providing them with exclusive software not yet available to the public. With the recent launch of its e-filing system, Russia is well positioned to roll out a digital identity program, leveraging artificial intelligence (AI) and the Internet of Things (IoT) (Dhaliwa et at , 2023, p. 63).

- DIGITALISATION

Since assuming leadership in 2010, Mishustin has led the Federal Tax Service (FTS) in an ambitious effort to significantly broaden its data collection scope. This expansion involves electronic invoices for business-to-business (B2B) transactions and online cash registers for retail, aiming to

capture nearly all transactions within Russia, especially those related to Value Added Tax (VAT), in real-time. Through this system, the FTS can automatically detect any discrepancies in input and output VAT, down to the smallest amounts, such as one rouble. According to FTS statistics, this initiative has effectively reduced the VAT tax gap from 20% to less than 1% (ICAEW, 2022, p. 26).

In recent years, the Federal Tax Service (FTS) has initiated a new direct access tax monitoring program, requesting certain major corporations to grant real-time access to their accounting systems for inspection. Although the program presently encompasses approximately 200 exceptionally large companies, there are plans to expand its coverage to other sizable enterprises in the near future. This project is structured on the COSO internal control framework, wherein entities with robust control frameworks receive less rigorous audits (ICAEW, 2022, p. 27). This approach of trialling new approaches before full implementation has been the trend in Russia, with previous rollouts being tested in one geographic region before expanding elsewhere. The trialling process helps to identify any difficulties and provides an opportunity to fix them before they would impact too many taxpayers. (ICAEW, 2022, p. 27).

3.4 UK case study

The UK is a founding member of the Digital Nations group, a network of the leading digital governments. The group began in 2014 with five founding members, including fellow case study countries Estonia and New Zealand, and has since grown to 10. As such, the UK government has focused on modernising its administration and increasing (ICAEW, 2022, p. 27).

the efficiency of its services. Taxation in the UK, characteristic of a sizable and advanced economy, falls under the jurisdiction of Her Majesty's Revenue and Customs (HMRC). The majority of citizens are not required to submit annual tax returns, as real-time payroll data and pay-as-you-earn deductions cater to the requirements of most employed individuals. Those with more intricate tax circumstances typically file on an annual basis Regarding companies, VAT filings are typically quarterly or monthly, while

corporation tax filings are typically done annually (ICAEW, 2022, p. 28).

- DIGITALISATION

The UK government has offered online filing for all taxes for many years, and uptake of these options has been high – over 90% in most cases, according to HMRC. However, since 2015, HMRC has been carrying out a second-wave digitalization programme called Making Tax Digital (MTD). This requires taxpayers to keep digital records and submit information using API-enabled commercial software, rather than manually completin online tax returns (ICAEW, 2022, p. 28).

MTD aims to streamline tax payments by providing automated, high-quality data feeds and consolidating all tax-related communications into a single online account. HMRC also aims to enhance its access to real-time tax information, enabling targeted compliance efforts and economic monitoring. This initiative is expected to contribute to narrowing the tax gap, which was estimated at £31 billion in 2018-19. Additionally, the project seeks to promote broader digitalization of the economy by mandating electronic record-keeping, fostering a robust market for third-party software services, and financing the upgrade of legacy backend systems and improving IT system resilience (ICAEW, 2022, p. 28).

HMRC currently utilizes its stored data to automatically populate individual income tax returns, incorporating real-time payroll information submitted by employers. There are intentions to broaden this practice to encompass additional areas gradually. The real-time information system has also enabled HMRC to refine collections to mitigate instances of over- and underpayments, albeit not achieving the extent initially envisioned (ICAEW, 2022, p. 28).

The COVID-19 pandemic has hastened HMRC's uptake of cloud storage. Similar to other tax authorities, HMRC was tasked with swiftly deploying emergency support measures and disbursing loans and payments. The agility conferred by the agency's ongoing digital transformation facilitated the rapid implementation of these schemes. Moreover, these systems provided some resilience against fraudulent claims, leveraging information gathered by the broader tax system. However, the targeting and

auditing processes were not flawless, as outlined in the 'Impact of the COVID-19 pandemic' section (ICAEW, 2022, p. 28).

4**. Challenges and opportunities for digitizing tax administrations** (NTO, 2023):

The digitalization of tax administrations presents various advantages and challenges. On the positive side, digital transformation can streamline tax procedures, enhance compliance, improve data management and analysis, and promote collaboration among tax authorities and other governmental entities. These benefits collectively enhance the efficiency, transparency, and fairness of the systems. Transparency, facilitated by the digitization of taxpayer information, could further bolster taxpayers' confidence, foster the state-citizen relationship, and contribute to effective domestic revenue mobilization (DRM). Additionally, technology enables tax authorities to boost compliance, mitigate tax evasion, and reduce administrative and enforcement costs. Implementing electronic filing systems with automated tax calculations, online platforms for tax payments, and digital identity frameworks can substantially alleviate compliance burdens and enhance accuracy (NTO, 2023).

The challenges associated with the digital transformation journey of nations are intertwined with the overall level of digital advancement within each country. While nations in the early stages of digitalization grapple with establishing the necessary infrastructure, those at an advanced stage encounter issues related to data security, privacy, and confidentiality. These challenges involve addressing ethical and legal considerations, ensuring fair access to digital services and resources, and providing workforce training to adapt to the digital era. Therefore, each tax administration must devise a tailored solution that addresses its specific challenges. Successful and sustainable implementation of a digitalization strategy necessitates tax administrations to be proactive and responsive to demands (NTO, 2023).

5. CONCLUSION

Most tax administrations have embraced the concept of adopting a "Future Tax Administration" approach based on the flow of big data, continuous access to taxpayer data and transactions, and the use of

advanced technology to make all functions faster, more efficient, and effective.

Through this research paper, it is possible to highlight the following key findings:

- Digital technology in tax administration not only provides lower transaction costs but also enables innovation in tax policies;
- Tax administration processes have evolved from manual work to digital management, progressing through three main stages: Tax Administration 1.0, Tax Administration 2.0, and Tax Administration 3.0;
- Brazil faces significant challenges in its endeavor to digitize the tax system, primarily stemming from the sizable informal and untaxed economy, along with the inherent complexity of the tax structure. Despite extensive initiatives aimed at reducing the considerable tax gap, these efforts have resulted in increased complexity regarding taxpayer reporting and payment procedures. While the time spent on tax compliance in Brazil has notably decreased with the advancement of digitalization and modernization, there remains a considerable distance to cover;
- Kenya has transitioned from a predominantly paper-based system to a largely digitalized one remarkably quickly. The Kenya Revenue Authority (KRA) has effectively utilized the influence of M-Pesa to expand its outreach and efficiency in revenue collection. This shift has resulted in a significant decrease in paperwork. Additionally, Kenya has capitalized on both learning from and competing with neighboring countries and counterparts, contributing to its progress in this area;
- Russia's resource-rich economy struggles with digitalization, yet the Federal Tax Service has made notable progress in modernizing tax administration, notably reducing the VAT tax gap. However, taxpayers face significant costs to meet new standards without certainty about data usage, raising concerns about the balance between benefits and costs;
- The UK has established itself as a leading example of digitalized tax systems globally, undertaking a comprehensive overhaul of its operations

and implementing an extensive real-time data collection system. This infrastructure facilitates analytical efforts to target tax audits and detect instances of tax fraud and error;

- In order to facilitate the forthcoming digitalization of tax administration, it is essential to prepare for the acquisition of the new skills and knowledge required to navigate automated platforms and technologies;
- While digitalization isn't a cure-all for every challenge encountered by tax administrations, it can certainly enhance their ability to fulfill their primary objectives with greater effectiveness and efficiency.

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