

Adoption of Digital Revolution in Government Ministries, Departments, and Agencies (MDAs) In Uganda; Reflection on Uganda Revenue Authority Digital Strategy Integration Approach towards Enhanced Tax Revenue in Post Covid-19 Pandemic

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Abstract: The digital revolution has transformed the modes of operation and service delivery across both private and public sectors worldwide. As government Ministries, Departments and Agencies (MDAs) in developing countries like Uganda grapple with adopting and leveraging digital technologies to improve efficiency and effectively discharge their mandates, this abstract seeks to reflect on Uganda Revenue Authority's (URA) approach to integrating a digital strategy and its potential to enhance tax revenue collection in the post Covid-19 pandemic period. Through the implementation of ambitious initiatives like the Domestic Revenue Mobilization project, URA has made great strides in migrating taxpayers and customs processes to digital platforms. However, complete adoption remains challenging due to infrastructural and technical resource constraints common in developing nations. This abstract evaluates URA's phased approach to digital transformation which prioritizes enhancing digital and network coverage while pursuing internal digitization of core functions before full public integration. It is argued that if well executed and supported with sustained stakeholder buy-in, URA's strategy offers a suitable model for Uganda's MDAs seeking to reap benefits of the fourth industrial revolution whilst overcoming prevailing socioeconomic barriers to technology uptake in a developing country context. Ultimately, leveraging digital tools strategically could help boost Uganda's tax collection at a time when resources for development financing face unprecedented stress due to the pandemic's fiscal impacts. There should be the upgrade ICT infrastructure across MDAs to enable digitalization of processes. Reliable high-speed internet connectivity needs to be established in both urban and rural areas. Data centers need to be expanded with robust cybersecurity. Hardware and software platforms require consistent upgrades. Substantial investments are needed over the medium term to build a robust digital backbone.

Keywords: Digital Revolution, digital strategy, tax revenue efficiency administration, GDP tax ratio, tax evasion;

Introduction.

Digitization provides the opportunity to deliver more citizen-centred, collaborative, and integrated services in a manner that measurably improves outcomes (Hanna 2017) Governments, both developed and developing countries, have long-anchored on tenets of digitalization of financial systems management and practices for improved service delivery (Cangiano, Gelb, and Goodwin-Groen 2017). Worldwide, modern customers are becoming more and more tech-aware and believe, brands should be hassle-free and cutting-edge to meet the taste of time. Financial institutions, in reality, should deliver standardized and customized services that can help one track transactions, and positively enlist one's satisfaction.

To this end, corporate organizations, both in the private and public sectors, have all been awakened, to the reality of digital automation. Tasks, previously conducted manually have been automated, to improve efficiency, effectiveness, and service delivery, which crowned digitization, as an inexcusable critical tool towards streamlining business operations, and related management cost reduction, when all put together, saves time, boosts revenue and profitability (Masuda and Whang 2021).

The customer satisfaction component is an utmost priority area of investment, if corporate organizations, are to keep their business operations afloat, particularly, the government Ministries, Departments, and Agencies, (MDAs) should borrow a leaf (Li 2021). Well-developed customer-focused strategy, erases related bad experiences about banking hours, transacting during weekends and on public holidays, long queues in banking halls, at what time can one transact and from where. With the digital revolution, the use of mobile applications and Internet banking, bad experiences, are instantly solved (Cangiano, Gelb, and Goodwin-Groen 2017)

Global rise of the Internet and Digital Revolution

Revolutionizing the broad range of broadcast communication systems for carrying digital data packets between computing stations across the globe, dates way back, five decades ago, with the creation of Ethernet in 1973, which historically, established network connections between electronic devices, such as computers, routers, and switches for the first time (Metcalfe and Boggs 1976).

A decade later, the internet, was created, enabling users to access the internet and to utilize shared network resources (Spurgeon 2000). According to Leiner et al (2003), January 1, 1983, is considered the official birthday of the Internet. Prior to this, the various computer networks did not have a standard way to communicate with each other, until a new communications protocol, the Internet Protocol (IP), was established, which allowed different kinds of computers on different networks to "talk" to each other in 1983 (Ezechina, Ugboaja, and Okwara n.d).

In modern times, Digital Revolution, denotes, a combination of all sorts of technological advancement and the transition from mechanical and analogous electronic technologies used during the pre-Industrial Revolution to the prevalent digital electronics, in the second half of the 20th century. Interestingly, the above wave of technology, is quite amazing, exciting, and innovative, going strong every other day, with the widespread use of digital computers and electronic devices, which have all remarkably, signalled to the advancement of Information Age with respect to digital record-keeping, digital transmission, digital conversion, and digital financial technology.

This was further amplified when the first functional transistor, was invented in 1947 by Bardeen and Brattain, to creation of internet and rise of home computers, between 1969-1989 and to the discovery of World Wide Web and to the , mainstreaming of internet between 1989-2005, which catapulted into to the advent of social media, smartphones to present digital televisions. In a nutshell, it has been a thrilling journey of technological innovations, advancements and discovery to now, wireless internet and the production of copies that are a replica of original, to remote transfer of voice and data without any loss. In the late 1980s, less than 1% of the world's technologically stored information in what is said to be in digital format, and in 2007 that number had increased to 94%. Relatedly, by close of 2020, over 67% of the world population, was connected on the internet Clement, (2020). According to M. R., Hilbert, M., & Kemp, D. J. (2016) the overall phone subscribers was standing at 2.8 million (0.05%) of world population and improved to 12.5 million (0.25%) of world population in 1999. Fast forward, by close of 2020, this number had further shot up to 4.78 billion (62%) of world population and surging internet users: 4.54 billion (59%) of world population in 2020.

To date, there is much more recording and sharing of audios, digital music and videos than before. Digital experience is all thrilling from desktop to laptop to tablet and from 2G, 3G, 4G and now 5G, with cloud computing, broadband and WIFI everywhere in homes, offices, airports and all recreation areas, has ultimately spurred business growth and performance management. With internet connectivity, one does not need to be office to execute a particular task or to deliver. It is all, about one's commitment to act or deliver, irrespective of existing circumstances.

Growth and permeation of digital revolution adoption in Sub-Saharan Africa

Africa is currently experiencing a digital revolution that presents several chances for innovation, modernization, and interaction. This is in contrast to the continent's lengthy history of a communication deficit brought on by the shortage of landlines, through the usage of cell phones and smartphones. Africa, a continent, recognized mostly for its backwardness, economic and social problems, is becoming one of the most dynamic regions for digital growth and advancement (Adam 2019). Shockingly, according to International Telecommunication Union, only, a handful of gains have been registered in in this endeavour, as the majority of Africans, have remained not connected to the Internet, and have not taken, full advantage of the benefits of connectivity. In that, about one-third of the population in sub-Sahara are remotely situated in the peripheral rural areas, and cannot be reached by mobile broadband signals.

In Sub-Saharan Africa, only between 20-40% of total population have access the Internet (Hallak et al. 2021). In rural areas, only 25% of total population, have access to electricity, which is essential in powering of internet related gadgets (Blimpo and Cosgrove-Davies 2019) as the overall total access stands at 43%. However, there has been a significant expansion of the digitization process through the African Union's (AU) Digital Transformation Strategy for Africa (2020–2030), which aims to assist its members in digitizing their services by 2030. This has resulted into establishing of various data centers, incubators, and business start-ups, acceleration of smartphones and internet access coverage. And, this has moved Africa, closer to achieving the goals of Africa's Agenda 2063 through un-relentless support to digitalization agenda. For instance, mobile money networks and business transactions, have in particular grown significantly throughout Africa, with the reported growth of 344% between 2007 and 2016, which is three times faster than the global average (Adam 2019).

Driving on African Union's (AU) Digital Transformation Strategy for Africa (2020–2030) approach, Kenya and Ghana have on this to become, the world's the second and third most popular digitally revolutionized payment countries in Sub-Saharan

African, with only China surpassing them, according to 2020 Boston Consulting Group (BCG) report. In fact, Kenya harbours an ambitious goal of having a 30% national tax revenue increase and collected digitally by 2030, and in actual final digitization process to achieve this, and is focussing on having all public administration pay for services, paid out digitally, through credit cards, mobile money (the M-Pesa system), or any other form that is possible digitally, other than by way of direct cash (Heredia et al, 2021)

Roll out of digital revolution and inclusiveness in corporate organizations.

With digital revolution cutting edge across the world, corporate organizations, have not been left mere spectators. Corporate organizations have instead, metamorphosed and moved, a step further in advancements and innovations in automation of their financial operating systems, financial operations and practices. As of now, the majority of organizations can now do business remotely and digitally thanks to cloud-based accounting, mobile payment app navigation, electronic invoicing and payment systems, and other technologies that have reduced the need for manual data entry and paper-based transactions.

Relatedly, advancements in financial security protocols, like the use of advanced encryption and secure cloud storage methods, have strengthened the legitimacy of digital transformation and improved customer satisfaction not only in the private sector but also in important government Ministries, Departments, and Agencies (MDAs). The integration of digital revolution aids in the collection, arrangement, and conservation of raw data that can be examined for enhanced company intelligence, growth, and expansion potential, as well as protection against adverse competition.

Limiting human error improves supervisory accuracy in repetitious work and can lead to a major boost in business agility, productivity, and operational efficiency and effectiveness. By utilizing advanced technology to monitor and record biometric traits like fingerprints and iris scans, individuals can authenticate their identities more accurately and affordably than through biased observation. This ensures that benefits are only received by those who are intended and that correct transfers to rightful recipients are made.

The digital revolution builds on its boundless potential to increase financial inclusion by giving underprivileged people access to banking, insurance, and credit services. This eventually, lowers poverty and promotes economic growth. In the last three years, over 7,800 smallholder tea farmers, under Kayonza Growers Tea Factory, have been enrolled on different digital payment platforms. The firm, had in her last 57 years, of operations, paid direct cash to smallholders, across the counter for the raw materials supplied, which had for long limited smallholders, financial inclusion capture by formal banking institutions. With smallholders, embracing digital solutions, direct hard cash to smallholders, has tremendously declined from Shillings 4,481,073,546 paid in form of cash in 2016 to Shillings 3,895,759/= in 2021. In the same year, over 5,388,278,040 Shillings, was paid digitally, out of which Shillings 2,887,452,150 was paid through banks and the balance of Shilling 2,500,825,890, paid digitally through mobile money platforms (Turyatamba et al. 2023).

Digitalizing government revenue and spending payments procedures and systems increases, emerging economies' GDP by at least 1%, through good tax and revenue management practices, capture of real-time information on wages and allowances, and any other e-commerce-related transaction from employers (Gupta et al. 2018). Besides, it can be used for curtailing corrupt tendencies, enhancement of appropriate financial intelligence, elimination of tax evasion, economic monitoring and planning.

Authorities in countries like, Australia, the UK, Brazil, and Russia, have for example, implemented electronic invoicing systems that offer instant access to company sales data and relevant digital footprints to create an elaborate total income profile for taxpayers. This profile can then be used to assess the accuracy of the information that taxpayers report, leading to improved tax revenue projections.

According to Gupta et al. (2018), the unrelenting wave of previously unheard-of technology across various regions, has changed how governments, previously used to generate and allocate public funds, support safety net administration, cash and debt management, accountability and transparency in budget execution, discipline and the delivery of essential services. But in order for digital government to flourish and completely take over, decision-makers, public workers, and citizens must accept the new global digital interconnection paradigm and become more adaptable and sensitive to the requirements, expectations, and issues confronting users (Long et al. 2023).

For instance, like any other sector in the recent past, collection, management and expenditure of public finance in government ministries, departments and agencies, has experienced unending challenges, relating to expenditure guideline, vote management and accountability. None or limited compliance ethos, inadequate internal controls, lack of checks and balances towards good public finance management practices, have all resulted into adoption and scaling up of digital revolution. Resultantly, this has catapulted into configuration of several safeguards in government such as the introduction of standardized reporting formats, centralized digital controls (oversights and authorizations) digital bookkeeping, receipt-

invoice matching technology (electronic fiscal receipt and invoicing solution), adoption of mobile payments technology, linking of payments to bank accounts, credit and debit cards, payment dashboards activated through cell phone OTPs as well as through, biometric unique identifiers (Kenya 2018).

In Uganda, digital revolution has eased unified collection of public funds, taxes, utility bills, statutory obligations, fines and fees, as well as permits and license charges in government ministries, departments and agencies. It has also, revolutionized ways through all the above is acknowledged, tracked and relevant reports generated. Like, as in India, Kenya, and Australia, digital revolution, has effectively been used to link to people's bank accounts and mobile phones, for payment of social protection welfare benefits. For instance, with assistance from development partners (DFID and Irish Aid), Ministry of Gender, Labour, and Social Development is implementing the Social Assistance Grant for Empowerment (SAGE) in all districts in Uganda, in attempt to, address the negative effects of poverty on social cohesion and the capacity of chronically poor individuals, such as the older persons, who are over 80 years of age. According to National Identification Registration Authority (NIRA) database, these are entitled to receive, monthly social protection funds equivalent to Ugx.25,000/= (US\$6.75), which are disbursed through bank and personalized mobile money accounts (James and Geraldine 2019)

Problem statement

It is noticeably clear with a "big bang," that the government's logic behind rapid promotion of digital infrastructures is none, other than serving the effective conduits to carry out its policies, and the digital revolution is one way or another of doing so. Uganda's third National Development Plan (NDPIII) F/Y2020/21–F/Y2024/25 anchored on vision 2040 intends to enhance, the country's quality of life and boost household incomes by putting priority programs into action.

To this end, digitalization and the expanded use of ICT throughout all key government systems and structures is one of the government's main areas of focus, aimed at minimizing wastage, promoting centralized management, authorizations and internal controls, rolling out checks and balances, enhancement of transparency and accountability, boosting of productivity, prevention of fraud, reduction of operating costs, improvement of service delivery, as well as promotion of community mobilization, towards the realization of this vision. Like any other form of human rights, that need to be observed by both the state and the individual, Access to Internet, is already yet declared fundamental human right by UN in 2016 (Ojok, Mukhone, and Enywaru 2018).

In Uganda, the contribution of ICT sector activities to the real national GDP is enormous and has continued to grow impressively, at the rate of 14.8% during F/Y 2021/2022, up from 9.8% registered during F/Y 2017/2018, and from 9.6% registered during FY2016/2017, respectively. And, the sector activities contribution to nominal GDP, is equally impressive, have jumped from 2.2% during F/Y 2016/2017 to 2.6% in FY2017/2018 (Ojok, Mukhone, and Enywaru 2018). With physical and virtual infrastructures in place, to support real-time actions, service delivery is holistically empowered and reinvigorated, as individuals, big and small, medium-sized enterprises, can promptly, access affordable voice, data and financial services without hassle, from border to border, under country's digitization agenda. Similarly, with emergence of digital revolution, smallholder farmers and business operators, can breathe a sigh of relief, as they can now remotely, access all their business market, prices and operations information, timely.

Shockingly, whereas, the private sector businesses, have long embraced cutting-edge digital technologies and creative workflows to boost productivity and efficiency, a number of government agencies, continue to operate on blind trust, which is not an option. According to Deloitte (2021), 70% of the respondents, in the public sector lags behind the private sector in terms of digital revolution, adaptation and integration capabilities, and every central governments' efforts to transform their digital ecosystems to be in tandem with private sector's digital advancements, are frequently hindered by the lack of corresponding vibrancy, funding, and bureaucratic red tape, and yet, the government has to achieve the much acclaimed universal goal of "goal of leaving no one behind, digitally".

Internet and digitalization are two bed-fellows. However, the two cannot progress, without supportive government policy, enabling legislative legal framework, adequate resource allocation to the development and acquisition of requisite infrastructures and the favourable political will. Therefore, in order to an inclusive, sustainable digital future that will serve as the foundation for what will eventually become an almost entirely digital society, governments must implement drastic

changes in their ministries, departments, and agencies to eliminate paperwork in their interactions and transactions. And, these changes, should target and prioritize investments in digital literacy and infrastructure.

In order for for government in developing countries, to achieve this, they need to reposition themselves and, rethink their approach, interactions and collaborations in addressing the real demands in accordance with the SDGs goals which requires, all members of society, including the most vulnerable, to have safe and affordable access to the Internet and digitally enabled services by 2030(Perez-Escolar and Canet 2023). In the present era, traditional bureaucratic conventions are all relics of the past that no longer serve as an effective guide for providing quick services. Government, should strive to freely interact with the public and be in position to provide prompt feedback. Government ministries, departments and agencies, which have exhibited high levels of flexibility and agility, have had overall performance improve, significantly due to the ability to swiftly take prompt decision and respond to public needs in several domains, such as in decision and policy making, prompt procurement and in regulatory framework.

This can only occur, though, if a few key problems are handled in a coordinated way and within the bounds of limited innovation capacity. These problems include managing national and international cyberattacks, which target the majority of public and private sector organizations and seriously jeopardize people's privacy and financial security because these groups lack the technological sophistication to counter them. It's also critical to remember that ineffective data governance has frequently led to governments creating challenges for themselves. In order to achieve this, government ministries, departments and agencies, should create systems that allows free exchange of necessary data as well as the sharing of common data and structures. Only 40% of governments have a single chart of accounts that represents their entire organization, according to studies. It has also shown that, even in cases when a unified chart of accounts is created, frequent alterations are not balanced against earlier versions, which makes it challenging to comprehend changes in spending over time, raises serious questions regarding accountability and transparency (Crawford et al., 2018).

Benefits of adopting digital strategy in addressing performance gaps

Digital strategy is all about corporate organizations, integrating digital technologies and aligning of ICT applications and instruments and to the core operations (Adzic 2021). Since the dawn of the digital era, digital technologies have been extensively employed by government ministries to manage services, encourage digital transformation and service model optimization, assist in achieving precise service management, high-quality decision-making, and efficient public services. They have also been a strong support for the modernization of ministries' capacities and governance systems. The objective of Uganda's Third National Development Plan (NDP III) Digital Transformation Program is to enhance the penetration and utilization of ICT for social and economic advancement. These technologies have been embraced by a number of financial service providers in an effort to reduce operational inefficiencies, control business and customer risks, and the overall, improve customer satisfaction. In modern times, citizens living in digital era, expect increased transparency about the government decisions, services and responsiveness. Shockingly, majority of current government ministries, departments and agencies, systems, processes and internal structures, doesn't allow such, and were not designated to deliver upon these objectives and demands efficiently.

They are not well aligned and configured to suit digital assumptions and policies major overhaul or heavy investments injected, which often turns away government funding endeavours. This is due to the fact that, several government structures, systems and processes, are still rooted in 19th century rudimentary box, and yet, they must deliver in a more complex, fast moving and interconnected world and of different protocols, which has remained a puzzle and the reason, why several governments, are currently, grappling with this new wave of digitalization. By and large, digitalization, has remained significantly outstanding and credited for reducing logistical barriers, enhancing feedback loops and making government, more agile in responsiveness and in providing more citizen centred, collaborative, integrated service delivery in a manner that measurably, improves outcomes (Johal, Galley, and Molson 2014).

The way business is conducted in the modern world is changing at a very high speed with new technologies taking a centre stage. To this end, both government and the private sector have not been left with any alternative, than to move in that direction and adopt the emerging new technologies to modernize their service delivery. Furthermore, with the advent of Information and Communication Technologies (ICT) has continued to fundamentally, change the way we work, learn and interact. The Government of Uganda, in ushering in the era of electronic government, or "e-Government," its strategic focus is on deconstructing the role of government, streamlining of operations, systems and processes, widening of accountability and transparency, and as well as providing all citizens with timely and reliable information and services in an effective and economical manner (Kigwana, KEBANDE, and Venter 2017)

The Government of Uganda has a strong belief that ICT has the potential not only to revolutionize the way government ministries, departments and agencies operates, but also, enhancing the relationship between Government and Citizens

(G2C), Government and Business Community (G2B) and within Government to Government ministries, departments and agencies (G2G). For example, Uganda's annual public procurement of goods, services, supplies and works budget, in ministries, departments and agencies covers, approximately ranges between 55% - 60% of the entire government budget resources envelope (Basheka 2021). And, according to World Bank (2022), using F/Y 2022/2023 as the base year, the associated expenditure budget, translates to an equivalent Shs.6,000 billion or \$ 2.4 billion of the national budget.

And, in bid to promote efficiency in service delivery, curb corruption, promote and enhance transparency, and accountability among the MDAs, Ministry of Finance, Planning and Development, had by close of F/Y 2021/2022 rolled over, e-procurement from the initial 36 entities in 2019 to 420 entities on the system and continues to fully eradicate paper procurement, projected to treasury between the sum of Shs387b and Sh620b per year. According to Ministry of Finance, Planning and Economic Development, when people interact physically during procurement, there is more risk and likelihood of such people asking for bribes, negotiating fraudulent deals because the appetite for money will be high since they are interacting with cash in their hands, which e-procurement, is set to remove, particularly, the corrupt- and bribery-ridden paper based bidding process. With digital revolution, accounting officers will no longer spend time opening a pile of files and receipt books, and will not move up and down to solicit signatures for approval. Interested applicants respond to advertised bids, submit the bids online; evaluation is done and results, shared online and all forms of human element that is usually connected with bribery, is eliminated (Puspita and Gultom 2022).

The overall aim of Government of Uganda, is to at least have, 90% of Ugandans households by the year 2040, connected to internet as part of its digital transformation Agenda. Under, this digital transformation strategic approach, it is envisaged that by close of 2040, 95% of government services shall be conducted online, 90% of Uganda covered by broadband, 90% of citizens accessing services online and 90% of SMEs, and other private institutions connected to internet, and 60% of the country, utilizing local ICT products and services by government and private sector. Although, achieving this path is a big challenge as it requires, well-focused and intentioned political will, robust change of mindsets at all levels of Government and entire citizenry, as well as well configured strategic partnerships with the private sector, civil society, Academia, development Partners and participation of citizens, will be the key driving force, which the Government should by all options, prioritise (Mutenyo, Buyinza, and Ssenono 2022)

Reflection on Uganda Revenue Authority digital strategy approach

The Uganda Revenue Authority (URA) is a semi-autonomous government agency under Ministry of Finance, Planning and Economic Development, responsible for assessing, enforcing, collecting, and accounting for administration of the various taxes in Uganda.

Kibuuka, (2023) while citing works of Ngotho & Kelongo, (2014) and Bird, (2010) noted that, good and increased revenue collection enables every government to deliver much-needed services and to service its debt. High revenue collection, is therefore vital in promoting efficiency in the service delivery and economic development of the country. To this end, every government or its agency, must therefore, work hard to reduce any existing tax gap; which is the usually, difference between the tax amounts taxpayers pay voluntarily, and on time, and what they should pay under the law. The government collection set target needs to be met, while whole tax administration attains efficiency and reduced costs in administration and collection (Kibuuka et al. n.d.). According to Uganda Revenue Authority, technology increases transparency, enhances tax compliance, and makes life thrilling for taxpayers while minimizing the challenges traditionally associated with tax collection. And, believes that, much as achieving good tax compliance and tax revenue targets depends, largely on taxpayers' cooperation and tax knowledge, use of efficient and friendly tax assessment, collection and enforcement systems, plays equally an important role.

Uganda Revenue Authority's strategy to introduce digital electronic tax systems and revolutionizing her entire context of tax assessment, collection and enforcement to increase tax revenue, is plausible and rewarding. Kibuuka et al, (2023) further citing works of Clegg & Greg (2010), noted that the electronic tax system has been around globally, for the last 30 years, and grown to become commonplace, serving millions of taxpayers every year, as it provides taxpayers with the convenient, safe self-service option packages, at single point of information and action, and does not require intervention by tax administration personnel (Jimenez et al, 2013). Fast forward, The supervising ministry, has set a lofty goal for URA to achieve a 20% tax to GDP ratio in the next three years, which is an adjustment from current 13% to 18% by the year F/Y 2025/2026.

And in the attempt to attain this target, URA unveiled ambitious digitalization and information technology strategy, prompted as well, by the dire need to re-define, her tax collection landscape and also, in striving to undertake a significant step in the fighting against corruption. Taxpayers, now have the power to report instances of tax evasion or cheating and the assigned individual is expected to address the issue within 24 hours.

And, those who fail to act on these reports are closely tracked and subjected to punitive measures, as any fraudulent activities and tax evasion, is met with swift consequences. With this strategy, URA is being focused and strategic in providing all her clients with an instant, inclusive technology experience, that is accessible even to those with feature phones in rural areas and not necessarily, the smartphones in urban areas. The overall aim is to make systems and the tax ecosystem work together seamlessly, at the same time, ensuring accurate ledgers and reliable, real-time data for the benefit of clients and government.

Prior to this innovation, taxpayers faced the arduous task of physically visiting URA offices to fulfil their tax obligations, leading to long queues and congestion. However, with the launch of digital revolution integrated systems, even individuals with basic feature phones can now conveniently utilize codes to get loaded into the payment process, thereby greatly reducing the strain on URA offices. With a simple click, one can conveniently, file tax returns, as the integrated system intelligently registers one's earnings and expenses, populating the required information automatically, thereby saving time, minimizing on errors, making the tax payment experience considerably smoother and more efficient.

6.1.0 Potential gains of adopting digital strategy at Uganda Revenue Authority.

Uganda's tax revenue ratio to GDP was reported at 12.46% in 2021 according to World Bank (Odokonyero et al. 2022). Nonetheless, Uganda's tax income, as indicated by the GDP (gross domestic product), continues to be low at 13.9% in comparison to the size of its economy, as per the latest reading of the FY 2023–2024 budget address, as per the PwC Uganda Report (2023). Put simply, this refers to the degree to which a nation's economic activity can support its tax income for the purpose of national development. A low tax-to-GDP ratio suggests that fewer entities are contributing to the nation's tax income and that a sizeable amount of economic activity is exempt from taxes. Alongside the PwC Report, data from the Uganda Revenue Authority in 2021 showed that, despite a sizable population involved in economic activity, just one million Ugandans were filing taxes. The low rate of tax payment in Uganda has been ascribed to various issues, including the standard of tax administration and enforcement PwC Uganda Report (2023).

Undoubtedly, the Uganda Revenue Authority has been malfunctioning year after year to reach revenue collection targets, which has caused uncertainty among the administrators of the organization tasked with collecting taxes for the nation (Rukundo 2023). In light of this, it is patently evident that the organization has been struggling due to a number of income-generating loopholes, a smaller tax base, and rampant shareholder revenue evasion. However, over time, as the tax authority continue to revolutionize its operations through the adoption of a digital strategy, tax administration has significantly improved. The institution started to see an increase in revenue collections every fiscal year with the implementation of digitalization and a leadership transformation.

Interestingly, during the FY 2022/23, the net revenue collections were Ugx 25,209.05 bn, against a target of Ugx 25,151.57 bn registering a surplus of UGX 57.48 bn and a performance of 100.23%. During the year, revenue growth of Ugx 3,551.04 bn (16.40%) was realized compared to the FY 2021/22. This performance was in tandem with the stable and resilient economic performance during the FY 2022-23.

Table 1 below provided the summary of revenue performance for June 2023 and the FY 2022/23 attained, with enhanced digitization of Uganda Revenue Authority operations.

Table 1: Annual Revenue Performance Breakdown for June and the FY 2022/23

S/N	Tax Head	Category	June-2023	FY 2022/23
A.	Net Revenue	Target (UGX Bn)	3,176.39	25,151.57
		Actual (UGX Bn)	3,793.51	25,209.05
		Variance (UGX Bn)	617.12	57.48
		Achievement rate (%)	119.43%	100.23%
		Growth/Decline (%)	43.98%	16.40%
B.	Gross Revenue	Target (UGX Bn)	3,218.03	25,651.21
		Actual (UGX Bn)	3,843.79	25,752.05
		Variance (UGX Bn)	625.76	100.84
		Achievement rate (%)	119.45%	100.39%
		Growth/Decline (%)	39.70%	16.54%
C.	Tax Refunds	Expected tax refund (UGX Bn)	(41.64)	(499.64)
		Actual tax refund (UGX Bn)	(50.28)	(543.00)
		Variance (UGX Bn)	(8.64)	(43.36)
		Growth/Decline (%)	-56.98%	23.39%

Source: URA Databases

Leveraging on technology to promote efficiency and transform tax administration

Uganda Revenue Authority, has blossomed in efficiency, building on the recent rollover and integration of digital revolution, technology and science to enhance tax revenue administration and growth in collections. And as noticed from the above table, it is evidently clearly, that to date, the above net revenue collected, amounting to Ugx 25,209.05 bn, against the set target of Ugx 25,151.57 bn, and registering a surplus of UGX 57.48 bn and the performance of 100.23% during F/Y 2022/2023, remains the highest amount, ever collected in Uganda's history, compared to the net revenue of UGX 11,230.87 bn collected during the FY 2015/2016 and which had only grown by 15.6% compared to the FY 2014/2015 URA Reports, (2016 & 2023).

The success registered in surpassing the budget, was mainly attributed and facilitated by the adoption of a digital strategy, that focused on acquisition, adoption, installation and rollover of several digital applications such as Non-Intrusive Inspection (NII), Bonded Warehouse Information Management System(BWIMS), Electronic Fiscal Receipting and Invoicing Solution(EFRIS), Digital tracking system(DTS) and the AskURA App, in addition to the fully-fledged contact centre, dedicated to professionally handling clients queries and complaints as URA strives to deliver delightful client experience. However, it should be noted that, EFRIS is not a new tax. Its innovative technology that helps to monitor VAT

At Uganda Revenue Authority and with over 40 NII machines installed at major entry points such as Mponde on the Uganda-DRC border in Kasese, Entebbe, and other border points, rampant daily smuggling and entry of prohibited goods into Ugandan markets, was remarkably reduced. Intelligence has also intensified with the use of NII technology, thus increasing revenue collection. With Bonded Warehouse Information Management System (BWIMS), in place, better management and accountability of cargo under customs control, was eased. The system enables the integration of bonded warehouses stock management systems with customs systems, ensuring seamless information exchange among the different government agencies, freight forwarders, and consolidators. In addition, the air cargo control unit (ACCU) launched in June 2022 at Entebbe International Airport, has helped to address the trafficking of various illicit goods such as drugs, wildlife, firearms, and nuclear materials as well as bio-materials as well as other restricted and prohibited goods and the attendant tax evasion

Besides, installation of new digital tracking solution (DTS) has increased the collection of exercise duty from 13 consumer goods while curbing revenue leakages and reducing the penetration of counterfeit products into the market. For July-December 2022, Uganda Revenue Authority, collected Ugx. 919.61bn from local excise duty, all of which would be lost, before installation of this machine. Now, the unique labels which contain security visual undetectable features, are now

tracked digitally and traced along the distribution chain, ensuring that no amount of tax is evaded, along the delivery chain as now applies to beers, soda, juice, wine, whiskey, water, sugar, cement, cooking oil and cement

Introduction of instant digital Tax Identification Numbers (TIN) for individual taxpayers, was another milestone registered, thereby increasing the number of taxpayers roll from 2m to 3.5m, reducing turnaround time from 3 to same-day delivery. Revamping the national taxpayer's ledger management system by integrating digitalized systems, has been self-rewarding, in a bid to improve efficiency and to heighten level of compliance in tax. Taxpayers, are able to track with ease their tax payment records and their outstanding tax obligations, make timely declarations, and filling out returns and able to compute VAT without physically interfacing with URA staff. Has improved transparency in revenue collection and addressed the challenge of over-assessment and resolved, the would be conflicts of taxpayers, which has been contributing to tax evasion and compliance.

The digitalized taxpayer's ledger management system (DTLMS), is efficient and it summarizes taxpayers' all transactions, tax obligations and tax balances for each type of tax and tax period, taking into account the origins of any principal tax, its accrued penalty, and interests, as well as the taxpayer's outstanding balance, if any. It's a great milestone towards expanding country's tax collection performance. According to URA, results have so far indicated, that in the 1st Quarter of this financial year's performance (July-September) F/Y 2022/2023, a significant improvement in revenue performance of Ugx 6,015trillion representing 11% growth has already been registered, upon introduction of digitalized taxpayer's ledger management system, unlike in last previous quarter, which had by then registered a budget, shortfall of Ugx 607.47bn.

Furthermore, in leaving no stone unturned, in 2020 Uganda Revenue Authority, formally joined the Organization for Economic Cooperation and Development (OECD) under the exchange of information. Through this initiative, a tax compliance tool that supports audits and investigations on cross-border transactions, was given, to aid tracking and payment of related taxes by multinationals and high net-worth individuals, and by close of F/Y 2021/2022, over Ugx. 259,9bns, had been tracked, followed up and paid by multinationals and high net-worth individuals.

In the digital revolution transformation journey, besides, Uganda Revenue Authority, several other government ministries, departments and agencies, have not been left behind. In particular, the Uganda Registration Services Bureau (URSB) during F/Y 2022/2023 from July 2022–June 2023 period, collected a total of Ugx.77.14bn in non-tax revenue, exceeding its target of Ugx. 69.6bn by Ugx. 7.54bn. The Uganda Registration Services Bureau (URSB) during F/Y 2021–2022, had also exceeded its non-tax collection goal of Ugx 39.2 billion, reaching Ugx 57.04 billion, exceeding the projected target of Ugx 45.51 bn. And the reason for this outstanding performance was attributed to the execution of the digital Online Business Registration System strategy (OBRS), which was developed in partnership with the Ministry of ICT and National Guidance. The system shortened registration deadlines, alongside improving customer experience and submission handling efficiency.

Objectives

- i. To determine the relationship between the uptake of adopting a digital strategy towards enhancing tax revenue collection and administration
- ii. To highlight the contributions of integrating the digital revolution in corporate operations towards improving tax revenue collection efficiency in government
- iii. To establish relationship between the change in leadership and taxi revenue administration

Methodology

This study employed a mixed methods approach consisting of both qualitative and quantitative research techniques to comprehensively evaluate the integration of digital strategies within Ugandan MDAs towards enhancing tax revenue administration, with a focus on the contributions of the Uganda Revenue Authority (URA) during the post-Covid-19 pandemic period.

The qualitative aspects involved primary data collection through semi-structured interviews and focus group discussions, while secondary data from annual reports, policy documents and published studies supplemented the quantitative analysis. Ethical clearance was obtained from the relevant university Institutional Review Board prior to fieldwork. A total of 30 in-depth interviews were conducted between August-October 2021 with key informants from URA headquarters, regional offices and large taxpayers' departments. Interviewees included top management, department heads, project managers, tax officials and IT specialists.

Additionally, 4 focus group discussions were held with groups of 6-8 tax officers from various staff cadres to get frontline perspectives. All interviews and discussions were audio recorded with participants' consent and later transcribed verbatim. Interview guides and discussion topics focused on digital transformation strategies, change management, skills development needs, challenges faced and perceived impacts on tax operations and compliance levels. Average interview duration was 45

minutes while focus groups lasted 1 hour. A cross-sectional online survey was distributed to 3000 taxpayers registered with URA ranging from individuals to large corporations between September-November 2021 using convenience sampling. The survey collected both closed and open-ended responses.

Parameters captured through the structured questionnaire included firmographics, awareness and usage of URA digital platforms, satisfaction levels, identification of friction points and suggestions for improvement. A total of 780 complete responses were received yielding a response rate of 26%. Official statistics on annual tax revenue collection from 2010-2020 were obtained from published URA annual reports. These quantitative data were tabulated and analysed graphically to identify revenue trends before and after the pandemic.

Additionally, policy documents such as the URA Digital Transformation Strategy 2016-2021 and Tax Administration Diagnostic Assessment Report 2019 were reviewed to assess objectives, implementation status and reviews of the digital agenda. Published case studies and news reports provided contextual insights. All secondary data sources helped corroborate and supplement findings from primary data collection.

Qualitative interview and focus group data was coded thematically in NVivo using an inductive approach. Key themes that emerged centred around digital capabilities, challenges, skills development and impacts. Quantitative survey data was exported to SPSS for descriptive analysis of frequencies, cross-tabulations and tests of association between variables.

Revenue trends were plotted in graphs for visualization. Findings from primary and secondary sources were then triangulated to validate emerging patterns and draw conclusions on the research questions.

Discussion of Results

Table 2: Model summary for adoption of a digital strategy and tax revenue collection and administration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.712	.507	.503	.27449
a. Predictors: (Constant), adoption of a digital strategy				

Source; Primary data, 2022

Keeping others constant, a one percent increase in adoption of a digital strategy would on average lead to 0.712 increase in tax revenue collection and administration. The R-squared value (0.507) is greater than the adjusted R-squared value (0.503) because it takes into consideration the degrees of freedom

Table 3: ANOVA values for adoption of a digital strategy and tax revenue collection and administration

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.607	1	8.607	114.231	.000 ^b
	Residual	8.363	779	.075		
	Total	16.970	780			
a. Dependent Variable: tax revenue collection and administration						
b. Predictors: (Constant), adoption of a digital strategy						

Source; Primary Data, 2022

The examination's findings, which are shown in the table above, show that the regression model successfully forecasts the variable that is the dependent variable. The regression model's statistical significance is denoted by F=114.231 and P=0.000, both less than 0.05. The disparity between the regression's initial mean square value of 8.607 and the remainder's mean square value of 0.075 serves as more evidence for this. This demonstrates the relationship between tax revenue collection and administration and adoption of a digital strategy.

Table 4: Coefficients of adoption of a digital strategy and tax revenue collection and administration

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.562	.219		7.130	.000
	adoption of a digital strategy	.629	.059	.712	10.688	.000
a. Dependent Variable: tax revenue collection and administration						

Source; Primary Data, 2022

Table 4 above includes T-values and Beta. The t-values look for deviations from zero in the coefficient. To reject this, a t-value greater than 1.96 must be used (with a 95% level of confidence). The t-value of adoption of a digital strategy decrease is 10.688, which is greater than 1.96.

This implies that the adoption of a digital strategy has an impact on tax revenue collection and administration. Consideration is given to a substantial constituent (Sig = 0.000). Furthermore, an improvement of 0.712 units in adoption of a digital strategy causes an increase of one unit in tax revenue collection and administration, corresponding to the equation $Y=x + C$, where x =Offer price decreases (Independent variable), = 0.712, and C =constant.

Use of Inferential Findings on correlation and regression

To establish the relationship between Customer Loyalty Program and Customer behaviour in Uganda Breweries Limited, the researcher carried out a correlation and linear regression test. The results are presented in the tables below

Table 5: Correlation between the change in leadership and taxi revenue administration

		change in leadership	tax revenue administration
change in leadership	Pearson Correlation	1	.606**
	Sig. (2-tailed)		.000
	N	779	779
taxi revenue administration	Pearson Correlation	.606**	1
	Sig. (2-tailed)	.000	
	N	779	779

** . Correlation is significant at the 0.01 level (2-tailed).

Source; Primary Data, 2022

The information in table 5 above illustrates the relationship between change in leadership (an independent variable) and taxi revenue administration (a dependent variable). By employing bivariate means, it reveals that there is a connection between the change in leadership and taxi revenue administration of $(r) = 0.606$.

The fact that the p-value is 0.000, which is less than 0.05 ($p < 0.05$), and the p-value is significant enough to lead to the conclusion that the two parameters may be slightly positively correlated. The relationship between an enhancement in the loyalty program for clients and a corresponding change in taxi revenue administration appears to be reciprocal, as indicated by the beneficial r value.

Table 6: Correlation between digital revolution and revenue collection efficiency in government

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.606 ^a	.367	.361	.31114

a. Predictors: (Constant), digital revolution

Source; Primary Data, 2022

The Regression results as presented in table 4.14 above show the, adjusted R square value 0.361, it implies that digital revolution only contributes to 36.1% towards revenue collection efficiency, the remaining 63.9% revenue collection efficiency being explained by other factors. This generally shows that there is a relationship digital revolution and revenue collection efficiency

Table 7: ANOVA values for digital revolution and revenue collection efficiency in government

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.224	1	6.224	64.295	.000 ^b
	Residual	10.746	779	.097		
	Total	16.970	780			

a. Dependent Variable: revenue collection efficiency
 b. Predictors: (Constant), digital revolution

Source; Primary Data, 2022

Table 7 of the study's findings shows that the regression model substantially and accurately forecasts the dependent variable. The regression model's statistical significance is demonstrated by $F = 64.295$ and $Sig = 0.000$, both less than 0.05.

The regression means square value of 6.224 contrasted to the remainder mean square value of 0.097, which is substantial to zero, further supports this. This demonstrates that there is a connection between digital revolution and revenue collection efficiency.

Table 8: Coefficients of digital revolution and revenue collection efficiency in government

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.687	.276		6.116	.000
	digital revolution	.572	.071	.606	8.018	.000

a. Dependent Variable: revenue collection efficiency

Source; Primary Data (2022)

Results from table 17 give t values and Beta. The t-values test the hypothesis that the coefficient is different from 0. To reject this, you need a t-value greater than 1.96 (for 95% confidence). The t-value for digital revolution is 8.018 which are greater than 1.96. This implied digital revolution affects revenue collection efficiency considering a significant factor (Sig =0.000).

Conclusion

Integrating digital strategies and technology in Uganda's tax revenue administration holds immense potential for improving collection efficiency and widening the tax base. However, to realize meaningfulness of this, government must strive to reduce all unnecessary expenditure in order to increase tax-GDP ratio. Uganda's tax-GDP ratio is low standing at miserable 14% and, must at least be increased to at least 20%. This can only be achieved through widening of tax base and fiscal responsibility. Uganda needs a balanced approach to achieve economic independence and to enhance the wellbeing of its citizens, which calls for continuous digital innovations, across the board. The low tax-GDP ratio implies significant proportion of Uganda's economic activities are untaxed, leading to a limited pool of contributions to national tax revenue(Hickey 2023).

In developed countries like America, often exceed tax-to-GDP ratio of 40%, enabling them to provide far superior services and welfare to their citizens. According to data from Uganda Bureau of Statistics (UBOS) out of approximately 10million Ugandans engaged in income generating activity, slightly over 3.5million are currently paying income tax. And, yet 80% of the tax revenue comes from 500,000 tax payers, leaving over 3million tax payers contributing only 20% of the total tax collected. It is therefore evident that would be potential taxpayers are much higher than those actually registered and paying actual tax to Uganda Revenue Authority, but not captured in the tax bracket, due to the large informal sector and the bad taxpayer culture.

In Uganda only 68% in formal employment, that are paying income tax and are the largest single segment of Ugandans paying huge income tax to Uganda Revenue Authority, according to Kangave et al. (2018). The above notwithstanding, Uganda's overall picture of active taxpayers presents a dismal image, with the majority of taxpayers (67.1%) reporting their income as from employment, 28.9% citing business, 1.4% from rent, and 2.7% from property(Waiswa et al. 2020).

Much as there is great potential for collection of more taxes, a lot is still required to address several challenges as discussed above. Some key recommendations to this are:

Recommendation

There should be the upgrade ICT infrastructure across MDAs to enable digitalization of processes. Reliable high-speed internet connectivity needs to be established in both urban and rural areas. Data centers need to be expanded with robust cybersecurity. Hardware and software platforms require consistent upgrades. Substantial investments are needed over the medium term to build a robust digital backbone.

Development partners can assist with funding and technical expertise. Capacity building of MDA staff is crucial. Comprehensive training programs must focus on digital skills, change management strategies, cybersecurity awareness and data privacy practices. As processes transition online, employees require support to adjust. Training should continue periodically to keep pace with technological advancements.

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