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T20 Policy Brief

Task Force 05

INCLUSIVE DIGITAL TRANSFORMATION

Leveraging Digital Innovations for Sustainable Development: Evidence from Tax Systems in Africa

Fabrizio Santoro, Research Fellow, Institute of Development Studies (UK)

Tanele Magongo, Manager of Strategy, Eswatini Revenue Service (Eswatini)

Razan Amine, PhD Candidate, University of Cambridge (UK)



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Abstract

Recent evidence, based on original research from the Institute of Development Studies, explores the intersection of tax systems and digital innovations in Africa, focusing on experiences from Rwanda, Uganda, Eswatini, Kenya, and beyond. A number of lessons can be derived from specific technological applications, such as online filing and payment of taxes, electronic fiscal devices, online registration, and digital payments for business transactions. Such lessons are essential to understand the potential of technology to advance the Sustainable Development Goals (SDGs). The research produces key findings that reveal distinct challenges and opportunities in the adoption of digital tax services and electronic payments. For instance, even when mandating the usage of digital tools in tax systems, as in Rwanda and Eswatini, adoption is not universal, since digital divides persist between users and non-users. Technology that streamlined bureaucratic procedures, such as tax registration in Uganda, seems effective in boosting registration numbers and easing the process for taxpayers. At the same time, manual habits and strong preference for cash are difficult to shape, limiting adoption patterns of digital payments in the economy across multiple African countries. This evidence offers essential insights to shape policies that advance SDGs through the strategic integration of tax and technology. Namely, we recommend governments to focus more on the barriers that often impede accessibility to translate into adoption, to tackle persisting hurdles that make taxpayers' life cumbersome after going to digital, and to identify the multiple issues arising from a digital shift in administrative processes, so to design digitalisation policies more coherent with the context in which they happen.

Keywords: tax systems, digitalisation, digital divide, Africa

Diagnosis of the Issue

Many governments in low-income countries, and especially Africa, are digitalising their systems and introducing digital solutions for citizens. This is true for [tax administrations across the Continent](#) as well, heavily investing in technology to strengthen their core functions and streamline services for taxpayers.

But what are the implications of the digital transformation of public administration on accessibility, inclusivity and equality among citizens, and what does that imply for the goal of sustainable development? And, relatedly, where is further progress most needed to maximise the potential of these digitalisation efforts in Africa? This policy brief summarises recent academic research from the International Centre for Tax and Development, specifically through its DIGITAX programme, and draws key lessons for policymakers and the G20 agenda more broadly.

Recent evidence from Africa suggests that digitalisation brings huge potential for improved outcomes, but also risks of exclusion and challenges with access. For instance, in Uganda and Ghana, registering taxpayers through their [national ID](#) has transformative impacts. By simplifying registration procedures, ID-based tax registration attracts diverse categories of taxpayers, particularly women and the younger demographic, fostering inclusivity for a large number of citizens. Likewise in Rwanda, electronic fiscal devices are appreciated by taxpayers for the increased ease of doing business and track sales for tax purposes. Digital payments more broadly, especially with mobile money, also foster safer and faster business transactions.

Despite these benefits, research documents a number of challenges. Many African governments have completely shifted to digital, not accepting paper-based documentation, such as tax returns, anymore. However, despite mandatory e-tax systems,

adoption is not necessarily universal, and a significant portion of taxpayers still [relies on semi-manual practices](#). This is true for Rwanda, which however witnessed a remarkable increase in uptake during the pandemic, or in Eswatini, where one year after the mandate to use the e-filing platform less than half of taxpayers actually did so. This indicates how policy targets of universal adoption of technology often diverge from what happens in reality, and the practical experiences of taxpayers.

Suboptimal adoption of technology is due to several challenges. This includes limited awareness and familiarity with the digital services, and technical barriers when using the tool, such as issues with connectivity, devices, system capabilities. Such barriers tend to create a digital divide between users and non-users, which is consistent across different contexts under study. In Eswatini, while larger firms engage more consistently with e-Tax registration, less sophisticated businesses exhibit lower rates of adoption. In Rwanda, digital divides persist with [Electronic Billing Machines](#) (EBMs), where small firms face more operational challenges and are more confused on how VAT works. The same applies in [Ethiopia](#) with e-filing. In [Kenya](#), practical challenges such as limited device access and language barriers push taxpayers towards intermediaries, which in turn distort the intended usage of e-filing and directly shape how taxpayers file and comply.

The end result of these challenges with technology is that taxpayers refrain from embarking in the digital transformation and prefer old, manual, habits, or recur to the support of intermediaries. For the case of digital payments, for instance, research on uptake of mobile money payments when transacting for goods and services in the economy from [Rwanda](#), [Ghana](#), Burkina Faso, Uganda and Tanzania reveals persisting reliance on cash¹. Such manual practices create further costs and burden on users, in terms

¹ In the countries under study, reliance on digital merchant payments ranges from a maximum of 63% in Burkina Faso to a minimum of 24% in Tanzania. Cash remains king, used by about 90% of the different countries' samples.

of safety and informality, disproportionately affecting the most disadvantaged taxpayers. Among the main barriers to adoption, there are lack of familiarity and digital literacy, implying that merchants are not aware of the benefits of digital payments, or find the process of getting a digital account difficult. Non-users tend to be less literate and less connected to the internet, all features common to the most disadvantaged strata of the population.

Importantly, another key reason why merchants tend to avoid digital payments is the presence of fees imposed on transacted amounts, which have increased in a recent policy shift towards [mobile money taxation in Africa](#). Such new taxes end up exacerbating even more disparities and inequalities, as [they disproportionately hit subsistence-level traders and informal entities](#).

Policy Recommendations

Based on the evidence above, a number of practical policy recommendations can be generated, targeted specifically at the G20 members. These are:

1. Raise awareness on and knowledge of digital services among citizens. Digital services are often frantically implemented and introduced, sometimes under the pressure of donors and international actors leading on the digitalisation agenda. These reforms come with limited attention to how to make sure citizens are equipped and fully aware of the innovations. This goal can be reached through a number of complementary options:

- Embed communication campaigns and initiatives, targeting especially the poorer strata of the population, women, elderly. The government plays a key role in this sense. The case of [Rwanda](#) is exemplar, where one of the key reasons why

merchants adopt digital payments, or why taxpayers gradually shifted to tax digital services, was the consistent action of encouragement and communication implemented by the government. Especially during the pandemic, the Rwandan government used all different means to reach the population, and clearly communicate the benefits of the digital transformation.

- Design user-friendly digital services, to facilitate less equipped citizens in navigating government platforms and the tax system. Always in [Rwanda](#), the tax administration designs a simpler, more basic service for filing and paying taxes, the M-declaration app. This is intended for smaller taxpayers remitting presumptive taxation². Evidence indicates how this tool has been particularly effective among the targeted population. In [Eswatini](#), a key functionality of the e-filing system was to provide clear deadlines for filing, as well as information on pending tax payments. Research indicates that this feature was essential in raising on-time filing and full payments of taxes due. When missing, as in Senegal, it severely curbs the full potential of the digital service.
- Include live online assistance in the digital service. Technological solutions for remote filing and payment must include ways for taxpayers to receive assistance from tax officials or other experts. That is the case of [electronic billing machines in Rwanda](#). The upgraded version of them, no more physical machines but now working on laptops as a software, comes with an online support line through which taxpayers can solve their queries.
- Complement digital tools with physical intermediaries. Many countries, as Rwanda, Uganda, Eswatini, still deploys humans to assist taxpayers struggling

² The app works on basic feature phones, requires the user to just input the annual turnover, then it automatically calculates the tax liability which, in turn, can be paid through the feature phone via mobile money.

with digital solutions. That is the case of the e-government platform *Irembo* in Rwanda, who offers dozens of physical offices country-wide where staff perform processes online on behalf of often-confused citizens. In *Eswatini*, internet kiosks were set up in which tax officials would help those in need. This solution is quite important during periods of transition from manual to digital. It addresses the persisting preference of people to still interact with humans, and also considers lack of connectivity in rural areas.

2. An inclusive design process of the new technology. Any new digital solution should be designed so as to clearly fit citizens' needs. This requires governments and implementers to carefully think about the features of the new services, pre-testing its effectiveness and promptly adjusting and improving it. Qualitative evidence cross-country unearths various taxpayers' opinions and suggestions on how to improve tax e-services. Embedding a feedback loop mechanism is crucial to include the views of final users. A multistakeholder approach should be pursued, so to have all key actors involved in the process, each bringing its own perspective. For instance, working with business representatives, representing private sector actors, would lead to a more inclusive technology, as the voice of businesses-users would be heard. Lastly, solutions that provide multiple languages, according to the local context, could ensure a higher uptake. Civil society organisations are quite vocal about issues with digital inclusion, and need to be included in the design of a new technology.

3. Strengthen IT systems and protect citizens' data. Tax digital services, such as e-filing platform, tend to malfunction at peak periods, usually around deadlines. The halt of online systems causes huge frustration among users, especially if penalties for late filing

are automatically triggered. This is often the fault of weak IT infrastructure on the tax administration side. Governments need to invest in strengthening their internal systems to cope with larger and larger numbers of taxpayers and submissions. A robust and reliable system generates trust and willingness to use it among taxpayers.

Another important way to increase digital trust, is for governments to establish a robust data protection framework. In [Kenya](#), for instance, the recent failure of the country's National Integrated Identity Management System represented a blow to the national digital transformation agenda, besides threatening citizens' data privacy and security and undermining trust. The development of digital services must happen along with a framework for data protection and cyber-security response infrastructure.

4. The power of data to facilitate taxpayers. Tax administrations need to invest in the appropriate skills and resources to make the best use of data. A more data-centric approach could also be more taxpayer-friendly and user-oriented. For instance, administrative data can be used to facilitate compliance, such as by providing pre-filled tax returns, where the turnover is calculated from other sources (such as electronic billing machines), and taxpayers are only required to approve or amend it. This solution can greatly reduce taxpayers' compliance costs, especially for those lacking appropriate bookkeeping practices. However, tax literacy should be strengthened in parallel, to avoid erroneous approvals of AI-based calculations by taxpayers who are unsure.

Inter-institutional data sharing and collaboration can also make the tax system more accessible. As shown in Uganda and Ghana, integrating tax registrations with national ID systems improves taxpayers' experience and transparency, reducing frauds. The India experience in this sense is remarkable. India has famously invested heavily in its digital public infrastructure, called [India Stack](#), and enjoyed particular success in developing a

digital ID system (Aadhaar) that has helped to support a range of improved outcomes, including related to taxation. In sum, connecting and integrating a variety of public services, building on digital identity, dramatically streamlines bureaucratic processes and makes government services more inclusive and easy to navigate.

Scenario of Outcomes

Digital transformation is expected to bring huge benefits to governments and final users, making public services, including tax administration, more transparent, less prone to fraud, more accessible and equitable. However, technology alone is not a silver bullet and a number of preconditions need to be in place to fully unlock its potential. As a matter of fact, rapid processes of often-disruptive digital transformation also come with risks that governments need to take into account in their policymaking. A number of contradictions and trade-offs can be highlighted, namely:

1. Acknowledge the overall limited adoption of foundational government services.

In the case of national IDs, the persisting challenges in reaching a universal adoption can limit their potential for tax purposes, despite a successful system integration. That is the case in Ghana³ and elsewhere in Africa⁴. Nation-level digital transformation should be embraced, which is difficult to achieve without a forward-looking political leadership and a coherent vision.

³ Even though the Ghana Card is the national ID in Ghana, and its PIN is currently necessary to access almost all the public services in the country and many of the private ones, its current coverage is still limited. Data from the National Identification Authority suggests that at by 2023 only half of Ghanaians had their Ghana Card.

⁴ More broadly, 45 per cent of people in Sub-Saharan Africa do not have an official proof of identity (World Bank ID4D dataset <https://id4d.worldbank.org/global-dataset>).

2. Usage of digital solutions should be consistent and not distorted by perverse, behavioural, responses of users. Even in the presence of widespread adoption, the potential of technology for tax administration can be curbed by taxpayers' behaviour, aimed at exploiting all loopholes in the digital solution – and the tax system more broadly – with the aim of reducing tax liabilities. For instance, new users of e-filing could report more turnover, but also increase their reporting on less verifiable margins (such as deductions) to leave their final tax liability unchanged. This strategic response means that complementary investment in the enforcement and monitoring capacity of tax administrations is needed.

3. Technology should not be used as a tool to reach unrealistic policy targets. As in the case of tax registrations and formalisation, technology is often used merely as an instrument to achieve higher and higher registration numbers. Broadening the tax base is an important policy goal. However, recent research on mass registration initiatives and the taxation of informal businesses has highlighted that emphasising the registration and taxation of numerous small-scale taxpayers may not yield significant revenue gains. Instead, it could exacerbate inequalities for those with limited financial means and strain administrative resources. The effective utilisation of technology is more probable when governments adopt a focused strategy. This involves leveraging new data to identify and tax larger non-compliant taxpayers while simultaneously establishing straightforward and fair avenues for smaller taxpayers to formalise their operations.

4. Risks of using technology for politically motivated purposes. Digital transformation is also an inherently political topic. This aspect can be exacerbated in less democratic contexts, where technology could end up being used as a tool to reach political

targets. Such risks could take many shapes. First, the presence of a digital identification platform in environments lacking full democracy and openness carries inherent political connotations and repercussions that necessitate thorough examination. Such technology can empower governments to exercise greater control, surveillance, or restrictions over their citizens. Secondly, navigating the micro-politics within diverse government entities, each at various stages of their IT development, presents significant challenges. Often, a persistent silo mentality dominates internal institutional dynamics, driven by the inclination of different government stakeholders to safeguard their exclusive access to data and constrain external scrutiny of their operations. Third, and related to the point above, there are political implications when deciding who to target when relying on technology, especially in the policy-relevant aspect of the fight against the informal sector. Larger taxpayers and corporations, with higher capacity to contribute, can instead be harder to tax through technology, due to their political connections and policymakers' hesitancy.

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