

Tanzania's Digitalisation Journey: Opportunities for value creation

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Contents

Acronyms and abbreviations	2
List of figures and tables	2
Executive summary	3
<hr/>	
01 Introduction	8
1.1 Context	9
1.2 Research objectives and methodology	9
<hr/>	
02 Current state of digitalisation: Digital inclusion	11
2.1 Availability and access to infrastructure	12
2.2 Affordability, adoption and usage	17
2.3 Awareness and skills	23
2.4 Online freedom and data protection	25
<hr/>	
03 Current state of digitalisation: Adoption of emerging technologies	26
3.1 Preparedness for 5G and advanced connectivity	27
3.2 Enablers for 5G deployment	29
3.3 Artificial intelligence	30
<hr/>	
04 Current state of digitalisation: E-government services	31
4.1 Increased capacity and resources to monitor progress and coordinate interventions	33
4.2 Enhanced systems interoperability	33
4.3 More effective and suitable digital systems	35
4.4 Improved resource utilisation	38
<hr/>	
05 Current state of digitalisation: Domestic e-commerce	39
<hr/>	
06 Digital policy agenda and regulatory framework	48
6.1 Guiding policies and key national targets	49
6.2 Policy efficiency and impact	51
6.3 Government institutions supporting digitalisation	55
6.4 Policy influences and technology governance approach in Tanzania	56
<hr/>	
07 Interventions and collaborations to close digitalisation gaps	58
7.1 Major interventions and collaborations with external actors	59
7.2 Alignment of interventions with national objectives	63
<hr/>	
08 Recommendations and opportunities for speeding up digitalisation	65
<hr/>	
09 Annexes	68

Acronyms and abbreviations

BOT	Bank of Tanzania	MIIT	Ministry of Investment, Industry and Trade
COSTECH	Commission for Science and Technology	NICTBB	National ICT Broadband Backbone
EAC	East African Community	NIDA	National Identification Authority
e-GA	e-Government Authority	OGP	Open Government Partnership
FYDP	Five-Year Development Plan	SMEs	Small and Medium Enterprises
GDP	Gross Domestic Product	TCRA	Tanzania Communications Regulatory Authority
GePG	Government e-Payment Gateway	TPC	Tanzania Posts Corporation
ICT	Information, Communication and Technology	TRA	Tanzania Revenue Authority
ICTC	Information and Communication Technologies Commission	TTCL	Tanzania Telecommunications Corporation
MDAs	Ministries, Departments and Agencies	UCSAF	Universal Communications Service Access Fund
MICIT	Ministry of Information, Communication and Information Technology		

List of figures and tables

Figure 1	Guiding framework	Figure 17	Non-unique web visitors to B2C online market places in Tanzania
Figure 2	Estimated internet subscriptions	Figure 18	Proportion of the adult population who purchased goods or services online
Figure 3	Mobile Connectivity Index (performance trend in selected East African countries)	Figure 19	Likelihood of e-commerce adoption by socioeconomic segment
Figure 4	Percentage difference between share of active SIM cards by region and share of population by region	Figure 20	Examples of e-commerce platforms in Tanzania
Figure 5	4G population coverage	Figure 21	Five-year national target
Figure 6	Map of Tanzania's National ICT Backbone Network	Figure 22	Examples of supporting policies and regulations
Figure 7	Usage and coverage gap	Figure 23	General taxes and fees vs mobile sector-specific taxes and fees
Figure 8	Key barriers to internet usage	Figure 24	Tax categories as a percentage of overall tax revenues from the mobile sector
Figure 9	Mobile data prices	Figure 25	Annual budgetary allocation to MICIT for development/capital expenditure
Figure 10	Smartphone prices	Table 1	Examples of government services using digital technologies
Figure 11	Market share of mobile device vendors in Tanzania	Table 2	Suggested consumer protection provisions
Figure 12a	Tech start-ups by sector	Table 3	Sample collaborative intervention programmes to support the government's digitalisation agenda
Figure 12b	Geographical spread of tech start-ups		
Figure 13	Growth of mobile money in Tanzania		
Figure 14	UN E-government survey 2022		
Figure 15	Map of supporting organisations in Tanzania's tech start-up ecosystem		
Figure 16	Universal roadmap for 5G deployment		



Executive summary

Progress in digitalisation uptake, although digital exclusions persist

The Tanzanian government is keen to fast track the uptake and use of digital technologies to improve public administration, grow the economy and achieve shared prosperity for all. Significant investments have been made to lay the foundations for digitalisation, including building digital infrastructure and boosting public service delivery through e-government.

Currently, the National ICT Broadband Backbone (NICTBB) connects regional headquarters and urban areas in the country, and extends to seven of the eight countries bordering Tanzania. The country has also made steady progress on mobile broadband coverage through liberalising the telecommunications sector, allowing multiple service providers to obtain licenses and establish operations, making Tanzania one of the most competitive mobile network operator (MNO) markets in Africa. These investments have resulted in positive outcomes, including increased

mobile broadband coverage (currently estimated at 81% of the population, up from 1% in 2006),¹ increased e-government service applications and public institutions connected to the internet (estimated at 300 institutions), and improved service delivery in select sectors such as water, electricity, and birth and death registration.²

While mobile users in urban areas can access 3G services or higher, almost a fifth of the country's population (primarily rural communities) remain excluded, with access to only 2G network coverage. Progress has been slow in expanding broadband connectivity to rural communities due to the difficulty in serving sparse remote areas in a commercially sustainable way. Public institutions located in rural communities are equally affected and unable to deliver services using centralised e-government platforms due to limited internet access.

¹ Source: GSMA Intelligence

² IPPMedia (2020), [RITA unveils achievements recorded in four years as it moves to digital](#)

Widening usage gap

At the national level, the gap between available digital infrastructure and usage is steadily rising and could potentially derail the efforts being made. For example, the proportion of the population with access to mobile broadband³ but not connected to or using a mobile internet service has doubled in the last five years, suggesting that potential users face critical barriers to digital adoption, which need to be addressed.

The major barriers to digital adoption in the country include the high costs of internet-enabled devices, low levels of digital literacy, distrust and inadequate online privacy safeguards, and inadequate basic infrastructure such as electricity to power digital devices. A large share of small businesses in the country do not use digital technologies because they lack sufficient know-how, are not aware of

the economic opportunities they can gain, and are cautious of becoming visible, which could result in higher tax exposure. Government personnel also struggle to deliver public services using existing e-government platforms, due to limited digital skills and a lack of familiarity with the systems.

In this context, the adoption of emerging technologies such as 5G, artificial intelligence (AI), big data analytics or blockchain is still at a nascent stage in Tanzania. Although some actors are already involved in the non-commercial launch of 5G services, the country is still missing critical digital infrastructure and significant demand for full deployment of 5G networks. Similarly, the AI ecosystem is dependent on a narrow pool of talent who are piloting solutions in various sectors, but they operate in a highly unregulated environment and struggle to scale.

Enhancing the delivery of e-government services is a top priority, but existing shortcomings need to be addressed

The government has shown commitment to digitising several of its operations for greater efficiency. It has also developed an e-government strategy and set up an implementing institution. While some of the digital applications introduced have been successful, e.g. the government's centralised e-payment gateway for revenue collection, which has curbed revenue leakages and provides better control over government funds, the benefits of investments in existing systems are yet to be fully maximised.

The tendency to adopt a short-term approach to e-government interventions and inadequate people-centred design that is responsive to users' needs affects the relevance and sustainability of digital services deployed in the country. Scarcity of in-house or local technical experts with post-internet era skills (e.g. UX designers, data scientists and scrum masters, among others) impacts the quality, adaptability and ease-of-use of systems or digital products being developed. In many instances,

government information systems automate only parts of a public institution's operational process due to a lack of clarity and ownership of the entire process. As a result, manual intervention is often required. Furthermore, digital e-government systems are not properly integrated, which limits data sharing and the quality of data resources. There are examples of digital applications that duplicate functions even within the same government agencies, due to siloed initiatives.⁴

To address these challenges, there is scope for prioritising users' needs and participation in the delivery of digital public services. Public institutions also require real-time technical assistance and transfer of knowledge to strengthen internal capacity for effective e-service delivery. For more effective monitoring and coordination of e-government strategy, the implementing e-Government Authority (e-GA) would require a clearer mandate and more robust expertise.

³ Mobile broadband refers to 3G, 4G or 5G technologies.

⁴ This is usually attributable to inadequate coordination between various donor funded intervention programmes.

Tanzania's e-commerce potential remains largely untapped despite a rise in mobile money transactions and growth in internet penetration

Only 5.9% of Tanzania's adult population is estimated to have made an online purchase during 2021.⁵ Consumer readiness is low due to digital exclusion and high levels of distrust stemming from inadequate consumer protection laws and enforcement. Excessive taxes on electronic transactions have made e-commerce less attractive. From a supply side, new e-commerce platforms are slowly emerging in the country, although they are still unable to serve rural and semi-urban locations due to infrastructural challenges. E-commerce development has been hindered by a lack of enabling legislation or roadmap

to guide strategic direction for e-commerce growth. Poor logistics capacity remains a challenge for e-commerce growth in the country. To this end, the government recently concluded a National Addressing and Postcode System (NAPS) project to register and digitise residential addresses to enable a post code system for delivery logistics. A stronger e-commerce policy landscape, combined with consumer sensitisation and capacity building for informal traders to switch to e-commerce, can improve the country's e-commerce prospects.

Absence of a comprehensive and clear roadmap on how to implement digitalisation goals

Tanzania needs a well-defined strategy or an integrated digital framework to guide digital transformation initiatives and ensure that policies introduced are not counterproductive. For example, the Finance Act of 2021 made cloud hosting illegal (although such storage systems tend to be more reliable, convenient and affordable), potentially undermining Tanzania's efforts towards becoming a regional digital hub.^{6,7} The government has also exploited the growth of mobile money to increase revenue collection via a series of sector-specific taxes. This approach has undermined digital and financial inclusion, as many mobile users have been disincentivised to use mobile money services, resulting in a reduced volume of mobile money

transactions. In addition, tech entrepreneurship has not been supported by investment-friendly policies, limiting the opportunity to foster a thriving start-up ecosystem. Limited privacy and digital rights protection, which are critical enablers of innovation, also remain a challenge and are slowing down digital transformation in the country.

The Tanzanian Government is set to develop a digital transformation blueprint to support growth of the digital economy and provide a conducive environment for investment in the country's digital sector.⁸ While the blueprint is yet to be implemented, various policies and regulations are also being reviewed to create an enabling environment, including a new Personal Information Protection Act.

⁵ World Bank (2021), [The Global Findex Database 2021](#)

⁶ [The Finance Act, 2021](#)

⁷ PWC (2022), [Local primary data server requirement - a disincentive to Industry 4.0?](#)

⁸ Extensia (2021), [Tanzania: Digital Economy Blueprint Coming](#)

Digital interventions are supported by donor collaborations

To address some of the digitalisation gaps in the country, the government has initiated large-scale interventions with support from foreign actors and development partners. Development cooperation on digital issues occurs in the context of a complex geopolitical environment. Tanzania has historically depended on foreign loans or grants from partners such as the World Bank, South Korea, member

countries of the European Union, and China to fund its digital campaign, all of whom have some influence over the nature of the digital interventions they fund. Tanzania must therefore retain some degree of ownership and ensure that externally-funded interventions remain aligned with its national priorities.

Policy influences

Tanzania's political settlement seems to be gradually shifting from a narrow-based typology to a more broadly dispersed approach that has less power imbalance and allows for decision-making to involve multistakeholder bargaining. Given this, the ruling party's interests and available funds continue to be the main driving factors in how digitalisation

policies and interventions are prioritised. The country, however, is able to benefit from a strong political interest, as well as the existence of key institutions, to support growth through digitalisation. The government is also open to partnering with relevant institutions that can support the country's growth agenda.



Potential areas for value creation

Need	Action or support required
Increased usage of digital infrastructure through both market- and policy-driven initiatives to improve affordability	<ul style="list-style-type: none">▶ Flexibility in payments and alternative credit assessment to expand device ownership▶ Consider subsidies for targeted user groups▶ Review the impact of sector-specific taxes and levies on the affordability of mobile devices and digital services
A more digitally aware and skilled society	<ul style="list-style-type: none">▶ Enhance teacher training in digital skills development▶ Increase access to digital equipment in schools for practice sessions▶ Reform the education curriculum from primary school levels▶ Increase technical and financial support to innovation and accelerator programmes that support tech entrepreneurship
Enhanced digital rights and online safety and security	<ul style="list-style-type: none">▶ Provide users, especially women, with the tools to increase their knowledge and skills to mitigate online risks▶ Support NGOs and civil society organisations that advocate for digital rights▶ Finalise and implement the Personal Information Protection Act
Reduced coverage gap in rural areas by stimulating demand and reducing costs	<ul style="list-style-type: none">▶ Encourage harmonised and clear requirements for deploying wireless network infrastructure at the local government level▶ Support more forms of infrastructure-sharing arrangements and public-private partnerships to de-risk investment in underserved communities▶ Extend government-to-business and government-to-citizens e-services to more local government institutions
More mature e-government landscape	<ul style="list-style-type: none">▶ Strengthen e-GA's expertise and resources for coordination and implementation of e-government initiatives▶ Adopt a user-friendly and agile approach to developing digital e-government applications▶ Invest in upskilling for public sector officials and raise citizens' awareness of existing government digital services▶ Prioritise greater system interoperability, data integration and big data analysis to support evidence-based policy making
Strengthened development of digital business and e-commerce	<ul style="list-style-type: none">▶ Implement a national e-commerce strategy and enforce consumer protection laws that facilitate easy mechanisms for redress▶ Work with relevant SME and trade promotion agencies to raise awareness of the economic benefits SMEs can gain through digitalisation, and support the development of skills required to successfully start and operate an e-commerce venture
Enhanced policy coordination	<ul style="list-style-type: none">▶ Implement a comprehensive roadmap for actualising digitalisation and harnessing the benefits that come with it

01 Introduction



1.1 Context

Digital and technology-based solutions and processes have become integral to advancing sustainable and inclusive development across the globe. Tanzania is still at a relatively early stage of incorporating digital technologies in public and private sector led initiatives that aim to benefit the country's society and economy. There is however significant government interest in digitalising⁹ key sectors of society and the economy, as reflected in the country's five year national development plan.¹⁰

The information, communications and technology (ICT) sector now contributes about 1.5% to the nation's gross domestic product (GDP), down from 2% in 2013.¹¹ This suggests that deliberate and determined efforts are needed to grow this sector. To achieve its national goal of turning the country into a regional digital hub, Tanzania will require significant investments. However, the country has several competing priorities, therefore any investments to support Tanzania's digitalisation agenda will need deliberate efforts based on informed guidance.

Significant investment has gone into building the country's digital infrastructure, such as the expansion of the national ICT backbone, which has contributed to increased mobile penetration and internet connectivity. While improved basic and digital infrastructure is an important foundation for digitalisation, in-depth thought and strategy is also required to advance digitalisation in Tanzania and translate it into tangible benefits for the masses. Prerequisites for advancing digitalisation include fostering digital inclusion, developing an enabling environment for private sector involvement, maximising available data to inform policy agenda, and promoting e-commerce. Given the attention and expectations for the digital sector in Tanzania, it is necessary to understand the strengths that can be harnessed, reasons for blockers to faster digitalisation, and opportunities for tangible gains.

1.2 Research objectives and methodology

This report seeks to evaluate the state and drivers of digitalisation in Tanzania, investments and policy enablers, gaps, ecosystem challenges, and opportunities for value creation in the digital economy. Specifically, the study will:

- Provide a better understanding of the digital landscape in Tanzania;
- Assess the strength of existing digitalisation foundations, as well as structural barriers to digitalisation, and opportunities for improvement;
- Evaluate the drivers and influences of digital progress in Tanzania that inform why and how decisions and investments relating to Tanzania's digital space are made; and
- Identify potential areas for multistakeholder support and engagement.

To accomplish these objectives, a qualitative

approach has been adopted. Findings were uncovered through extensive literature review, case studies and semi-structured interviews with more than 25 local stakeholders involved in Tanzania's digital ecosystem.¹² A full list of stakeholders consulted can be found in Annex 1.

The analytical framework adopted is shown in Figure 1, and it reflects a whole society (people, business, government and external players) approach to digitalisation by acknowledging the contributions and roles of various actors across multiple sectors.

⁹ For the purpose of the report, digitalisation here refers to leveraging digital technologies to improve social, business, and public sector operations or processes.

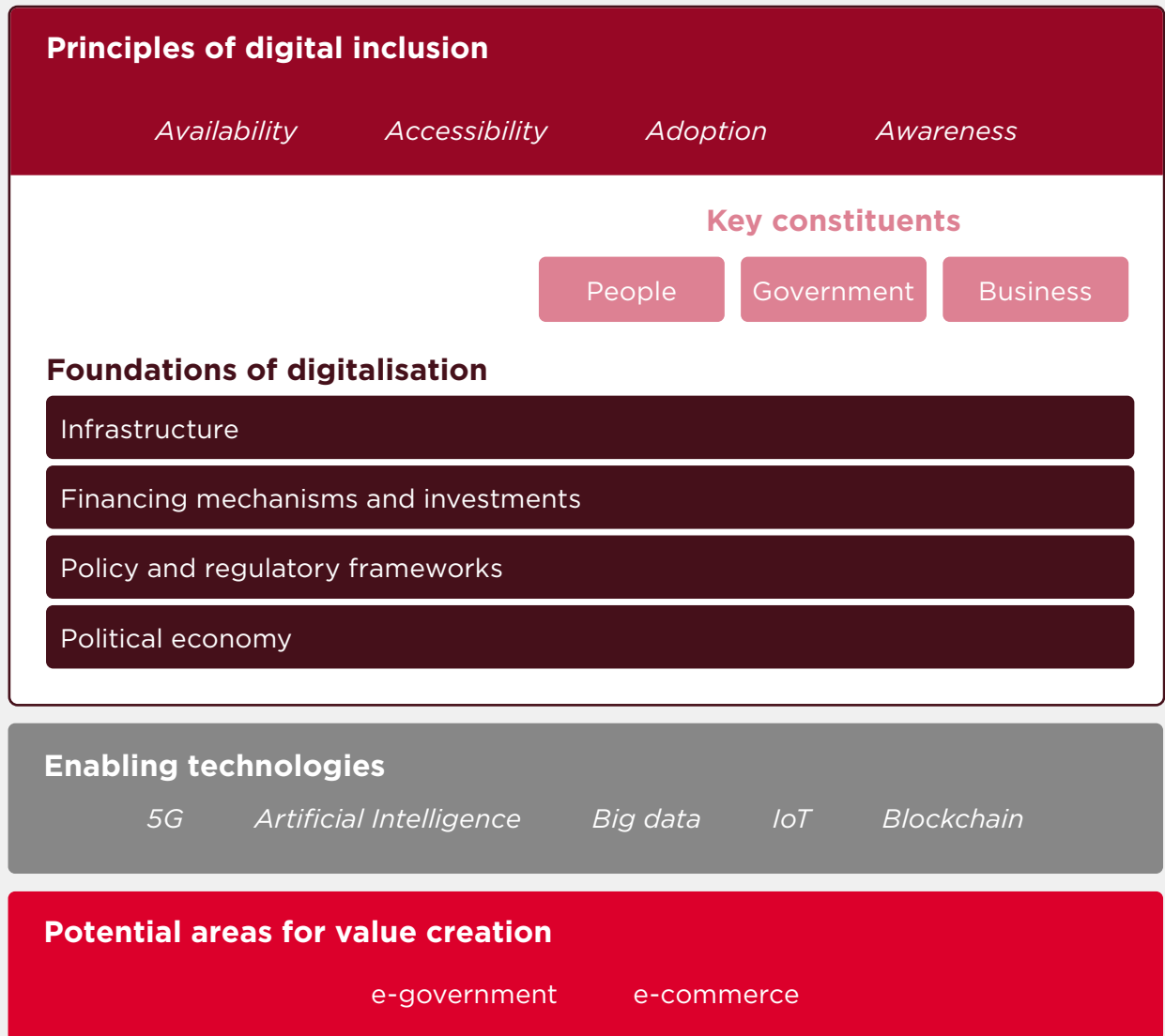
¹⁰ United Republic of Tanzania (2021), [National Five Year Development Plan 2021/22 - 2025/26](#)

¹¹ See: [National Bureau of Statistics | Macroeconomic Indicators](#)

¹² Information gathering was conducted between June and October 2022.

Figure 1

Guiding framework



Source: GSMA, adapted from UNDP's Digital Transformation Framework and the Digital Economy Kit by Pathways to Prosperity Commission

The study aims to support wider government efforts by identifying actions and agendas that should be prioritised.

02

Current state of digitalisation: Digital inclusion



Inclusive digitalisation ensures that digital technologies are universally available and accessible to both public and private sectors and individuals to support adoption and innovation to expand market opportunities. Inclusive digitalisation requires access to fast and reliable network coverage, affordable connection and internet-enabled devices, adequate digital skills, relevant content and services, safe use of the internet and digital services, access to electricity, and formal identification. It also mitigates inequalities often exacerbated by the use of digital services, empowers underrepresented groups, and protects people from the potential adverse effects of digitalisation. To promote equal access and adoption/consumption of digital services, a balanced approach

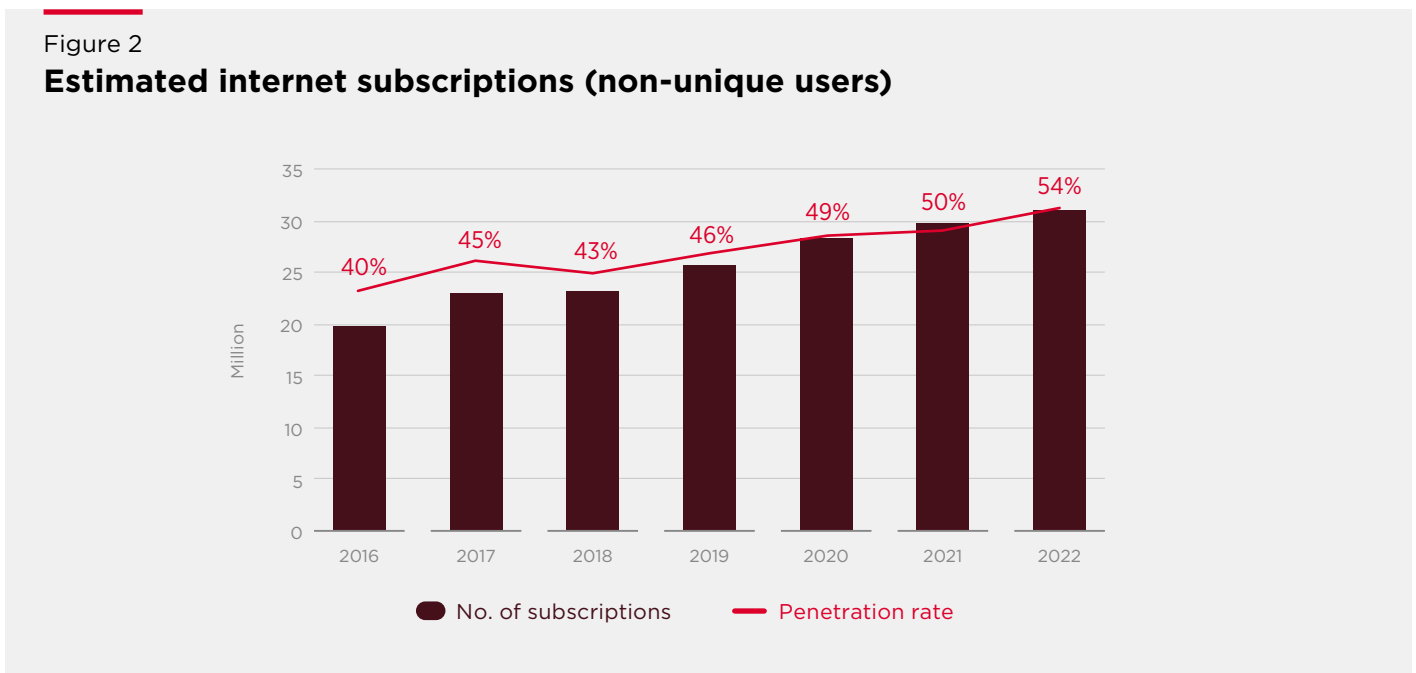
to digital inclusion is necessary as a lopsided approach runs the risk of amplifying existing socio-economic inequalities, given that increased supply of digital services does not always translate to increased demand.

This section provides an analysis of the current state of digital inclusion in Tanzania by looking at four pillars of digital inclusion:

- Availability and access to infrastructure
- Affordability, adoption and usage
- Awareness and skills
- Online freedom and data protection

2.1 Availability and access to infrastructure

Internet penetration rate in Tanzania is on the rise. Currently, half of the population have access to either mobile or fixed broadband internet.



Source: The Tanzania Communications Regulatory Authority (TCRA) Q3 2022

This is slightly above the average penetration level seen in Sub-Saharan Africa, although comparable with neighbouring East African countries.¹³

While fixed broadband is available in urban areas, most Tanzanians rely on mobile broadband for connectivity. Tanzania has made steady progress on

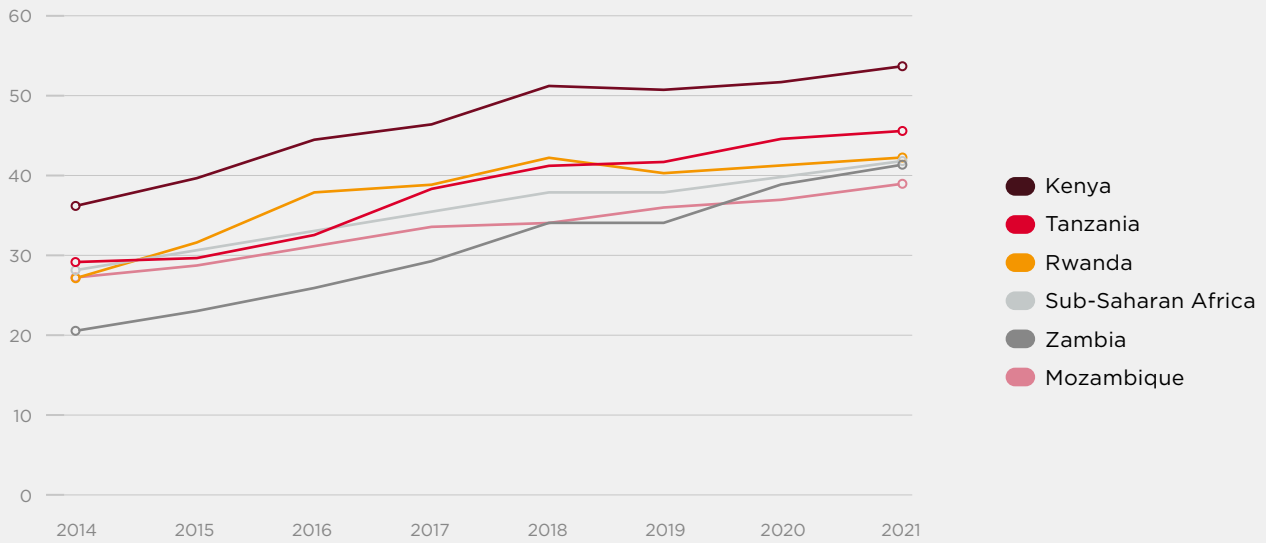
mobile connectivity, although it is still categorised as emerging per GSMA's Mobile Connectivity Index.¹⁴ The index assesses countries based on availability of high-performance mobile internet network coverage, affordability of mobile devices and services, citizen's digital awareness and skills, and availability of secure online content relevant to the population.

¹³ According to data from GSMA: Kenya - 57.75%, Uganda - 55.42%, Mozambique - 54.78%, Rwanda - 53.39%, and Zambia - 46.77%.

¹⁴ Countries that fall within the emerging category score above 35 out of 100 and perform fairly well on one or two enablers but show room for improvement on others.

Figure 3

Mobile Connectivity Index (performance trend in selected East African countries)



Source: Mobile Connectivity Index 2021

MNOs remain the largest contributors to the deployment of digital infrastructure in Tanzania. Mobile communication coverage levels for 2G, 3G and 4G are estimated to be 99%, 81%, and 55% of the population respectively.¹⁵ 5G is not yet commercially available in the country, although there are ongoing discussions to commence deployment soon.¹⁶ The MNO sector is competitive with seven major players, although a sizeable chunk of the market share is controlled by Vodacom, Airtel and Tigo. The liberalisation of the telecommunications sector allowed operators to obtain licenses and establish operations. By contrast, most countries in Africa often have a total number of three or four mobile service providers.

By the end of the fourth quarter of 2022, there were 54 million plus active mobile subscriptions in Tanzania, which is twice as many as 10 years ago.¹⁷ While this signifies progress, there are only 30.8 million unique subscribers (individual persons owning one or more subscriptions). Most of those connected do not have access to meaningful connectivity as they rely on 2G or 3G networks, which affects speed and quality of services. Also, many mobile phone owners still use feature phones, limiting their opportunity to fully benefit from digital services. The Tanzania Communications Regulatory Authority (TCRA) reports that less than a third of Tanzanians (27%) own smartphones and mobile internet enabled devices. Figure 4 shows the share of active SIM cards (total mobile subscriptions) per region versus the share of the population, while Figure 5 provides a snapshot of limited 4G network coverage in non-urban areas.

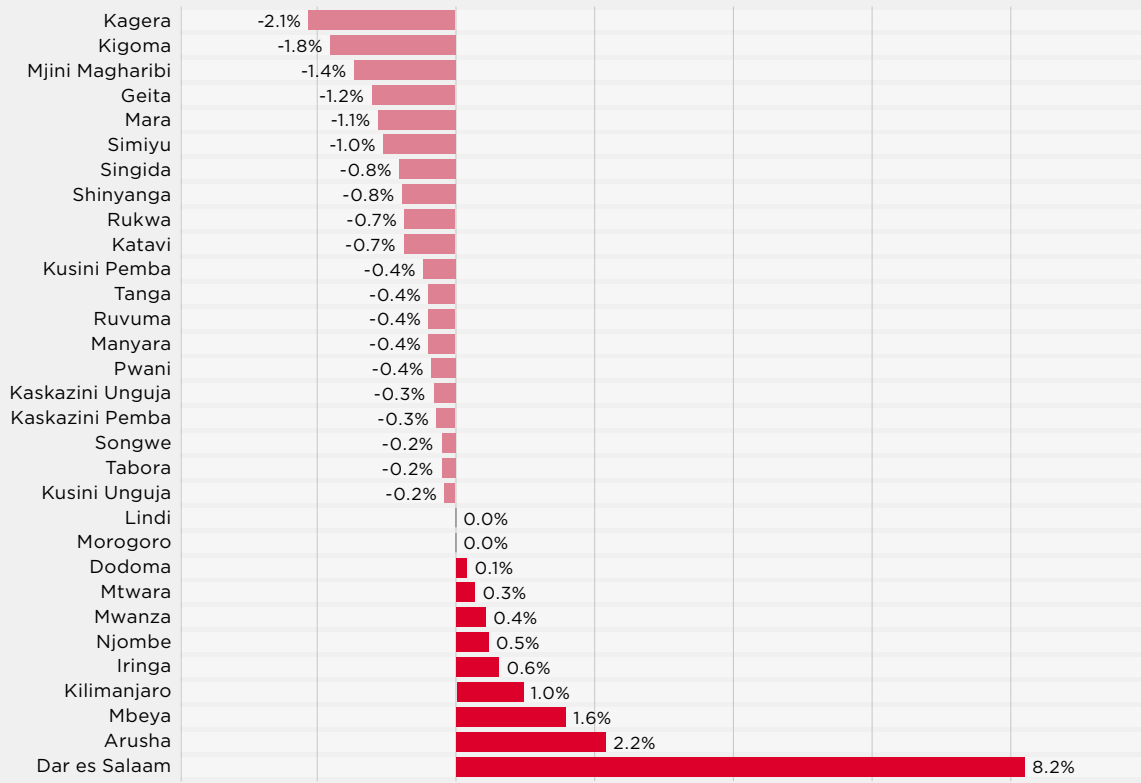
¹⁵ Source: GSMAi fourth quarter 2022, based on data supplied by operators. Airtel and Vodacom have made the biggest investments in 4G networks, both recording 4G coverage of half the population size. The 4G network coverage rate by the five other MNOs ranges from 24% to 28%.

¹⁶ Vodacom recently held an official launch event for 5G network, however deployment is yet to commence.

¹⁷ Source: GSMA Intelligence. Estimated population size is 61.7million per [Census Information Dissemination Platform](#).

Figure 4

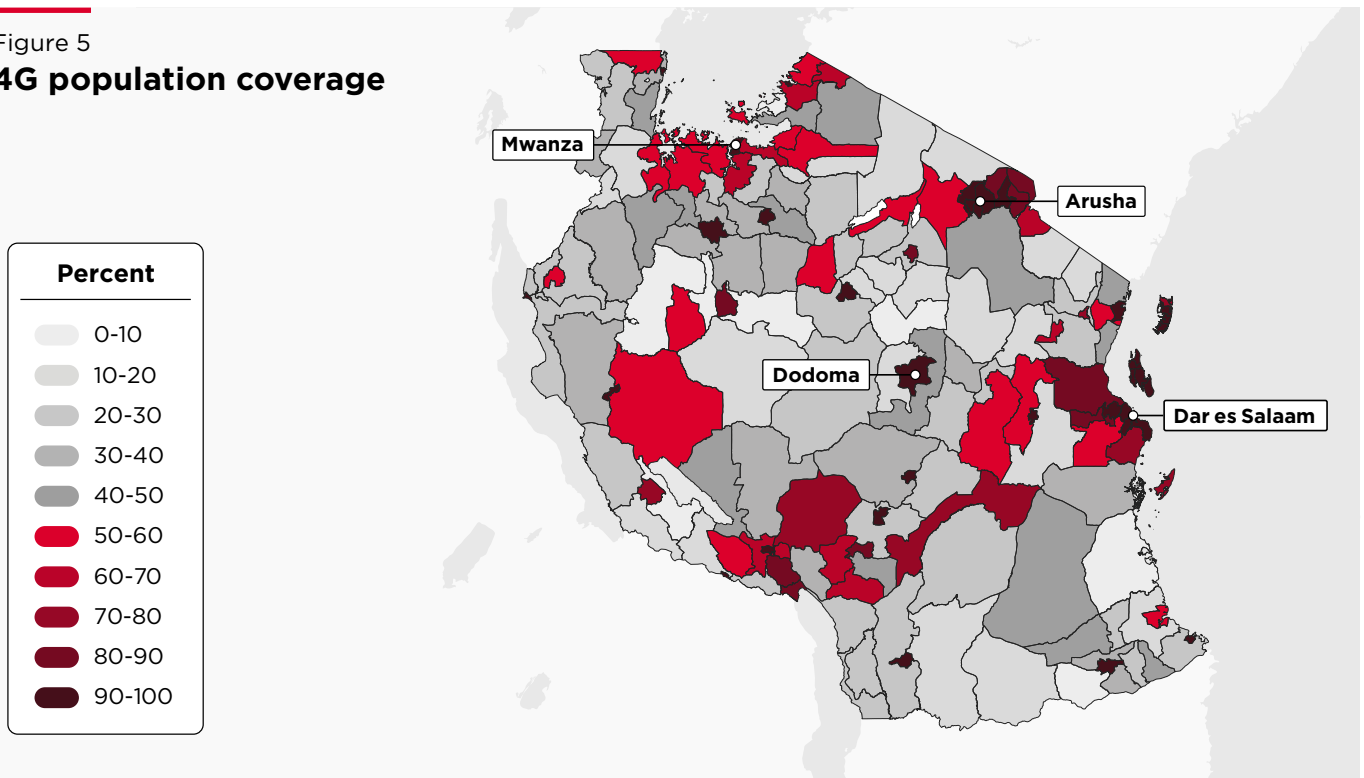
Percentage difference between share of active SIM cards by region and share of population by region



Data source: Elaboration of TCRA (Q3 2022)¹⁸

Figure 5

4G population coverage



Source: GSMA Intelligence

¹⁸ Negative percentages signify regions that are lagging behind in terms of mobile network coverage.

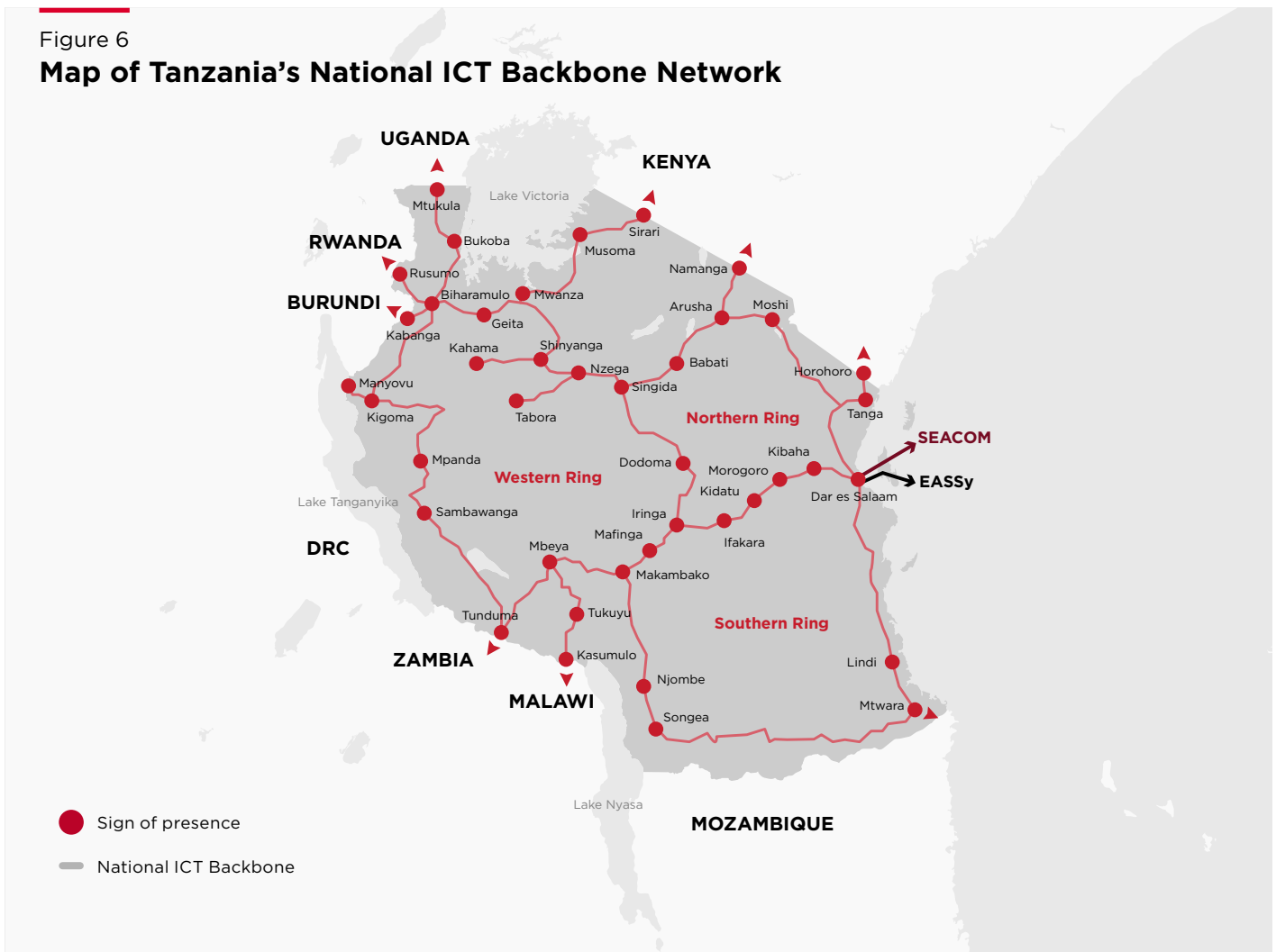
One of the key areas of focus for infrastructure development in the country has been to strengthen the backbone infrastructure to improve connectivity. Currently, the National ICT Broadband Backbone (NICTBB) connects all regional headquarters in the country and a few town centres, but does not get to the district, rural and semi-urban areas. Tanzania has also extended its backbone to seven of the eight bordering countries to further its goal of becoming a regional ICT hub. As of 2021, an estimated 27,912km of fibre optic infrastructure has been constructed. Halotel built and owns approximately 18,000km of the existing fibre infrastructure.¹⁹ The Tanzanian

government owns 7,500km of fibre cable, while the rest was constructed by a consortium of MNOs - Airtel, Tigo, Vodacom, and Zantel, with ownership split with the government. There are restrictions placed on MNOs from building inter-city networks; fibre rollout and pricing have therefore been affected by these restrictions.

Given that the majority of Tanzanians (over 40 million representing about 70%)²⁰ live in rural communities spread across several remote areas, the limited reach of the NICTBB suggests that rural populations are being left behind.

Figure 6

Map of Tanzania's National ICT Backbone Network



Source: NICTBB Network Topology

¹⁹ Ministry of Communication and Information Technology (2021), Tanzania National Broadband Strategy (2021 - 2026)

²⁰ See: [National Bureau of Statistics | Population Figures](#)

Progress has been slow in extending connectivity to rural areas, mainly because of the sparse population size and the challenges to justify rural network expansion or commercial viability. Inadequate basic infrastructure is also a major challenge to the deployment of digital infrastructure. Some effort has been made to support the extension of telecommunication services to underserved communities through a government agency. The Universal Communications Service Access Fund (UCSAF) identifies connectivity gaps and incentivises MNOs by providing subsidies on a portion of capital expenditure associated with deployment of mobile network infrastructure in rural regions. Such arrangements are however still not sustainable, as UCSAF has limited funds (sourced from government budgetary allocation, 1% levy on gross annual revenue of MNOs, donor organisations and investments).

The operating costs incurred by MNOs, such as tower rentals, are high. Even where cost sharing models exist between consortia of operators, the demand for services is low, preventing MNOs from recovering costs and breaking even. MNOs operating in Tanzania have hit saturation and are now running at a loss, such that they are competing on how to best minimise losses.

Another cost deterrent for expanding digital infrastructure in rural areas is the excessive right of way (RoW) charges imposed by the Tanzanian Rural and Urban Road Agency for intra- and inter-city fibre roll out, with charges up to \$1000/km, in addition to an annual maintenance fee. Associated charges are also paid to municipal councils and other local authorities.²¹ These fees are not harmonised and create a compliance burden and extra administrative costs for MNOs. To reduce costs, MNOs sometimes enter into partnerships, where possible, with the government or the local authorities.

Reflection

- Significant progress has been made to increase citizens and institutions' access to digital infrastructure, however rural communities remain excluded from accessing digital services.
- UCSAF requires additional funding to execute its mandate.
- Extending mobile coverage to rural areas is a fundamental step to achieve digitalisation, but network expansion cannot be achieved without sustainable business for MNOs models.
- Active infrastructure sharing arrangements and public-private partnerships, harmonisation of fees related to RoW, and land policies that guarantee property developers make provision for network fibre connection in new buildings could enable further gains in coverage.
- Besides decreasing investment risks, enhancing demand for mobile services can unlock revenue opportunities and improve the business case for rural network expansion.

²¹ The Tanzania Urban and Rural Roads Agency (TARURA) charges an initial fee of \$1,000 and an annual charge of \$1,000 per km of fibre. By comparison, there are zero charges in Rwanda, while Zambia charges only an initial fee of \$503 per km and no annual fee.

2.2 Affordability, adoption and usage

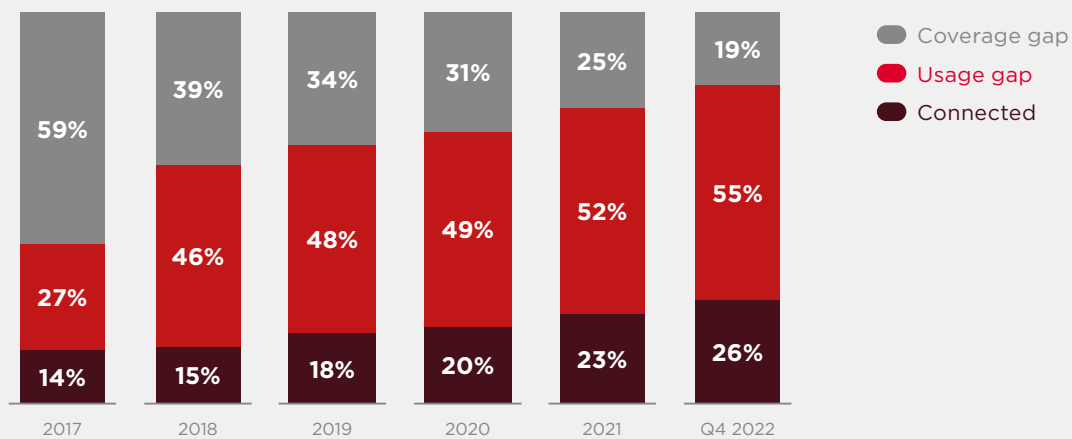
Adoption and usage: People

In Tanzania, a significant usage gap exists and keeps widening. The usage gap refers to the percentage of the population who live in areas covered by a mobile broadband network but do not yet subscribe

to a mobile internet service. For example, while 3G mobile network coverage is at 81% of Tanzania's total population, only 26% of the population are connected or use either 3G or 4G services.

Figure 7

Usage gap and coverage gap



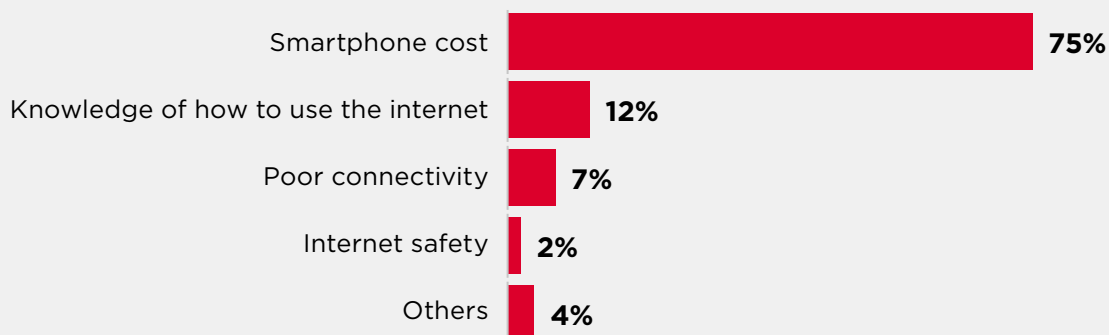
Source: Estimates based on data from GSMAI²²

The high cost of compatible digital devices is one of the main reasons for the usage gap.²³ Few Tanzanians own smartphones or devices that are 4G enabled; the majority of users have 2G compatible phones,

which are cheaper. In addition, low levels of digital awareness and literacy impede adoption and usage of available digital services, highlighting the need to address barriers to digital adoption.

Figure 8

Key barriers to internet usage



Source: UNICEF's U-report polls for Tanzania (2022)

²² Coverage gap: populations that live outside the footprint of a mobile broadband network. Connected: unique mobile internet subscribers. Usage gap: populations that live within the footprint of a mobile broadband network but do not use mobile internet.

²³ Bahia, K. & Suardi, S. (2019), *The State of Mobile Internet Connectivity Report 2019* GSMA

While data plans in Tanzania are competitively priced and relatively low-cost when compared to other countries in East Africa,²⁴ they remain out of reach for most Tanzanians when looking at their cost in relation to average earnings or income levels.²⁵ This is even more pronounced in the case of mobile device prices. Taxes and levies on mobile transactions and devices also push affordability further out of reach for poorer mobile users (see Section 6.2 for more on the impact of taxation on the demand for digital services).²⁶

Women are disproportionately affected by these high costs as they are more likely to have lower incomes and often lack financial autonomy within the household. According to the 2019 Mobile Gender

Gap Report, 77% of women compared to 86% of men own a mobile phone in Tanzania. In addition, only 17% of women in Tanzania have mobile internet access compared to 35% of men.

Transsion Holdings, owner of Tecno, Infinix and Itel brands, is the leader in Tanzania's mobile device market (Figure 11). Tecno and Infinix provide comparatively cheaper smartphone offers, however some of these cheaper devices have limited memory capacity and come with only three preloaded apps (Facebook, Instagram and WhatsApp). Downloading an additional local app may require users to replace existing configured apps.

Figure 9
Mobile data prices

Data services	Industry average price (per MB)
Pay-as-you-go	TZS 8
Bundle tariff	TZS 1.8

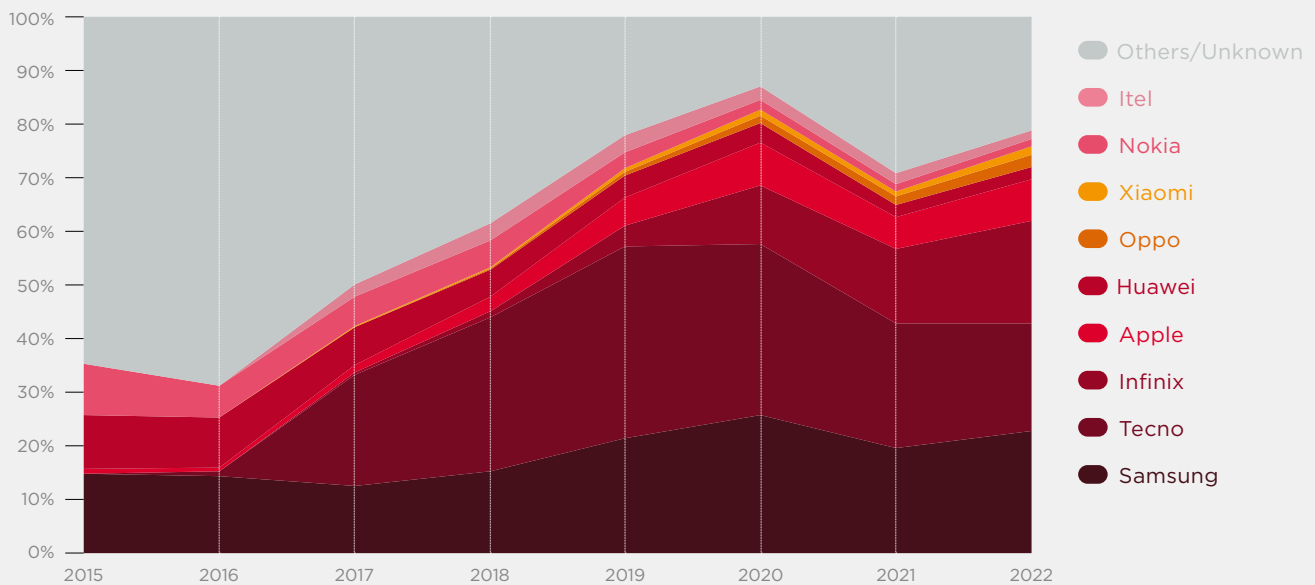
Source: TCRA Q3 2022 statistics

Figure 10
Smartphone prices

Average cost of smartphones (2020)	Cost as a fraction of average monthly income
\$29.09	34.23%

Source: Alliance for Affordable Internet

Figure 11
Market share of mobile device vendors in Tanzania



Source: Statista

24 TechCabal (2021) [Ten African countries with the cheapest data plans](#)

25 Minimum monthly wage can be as low as TZS 100,000 for some category of workers.

26 Digital tax issues discussed further under Section 6.2.

Adoption and usage: Business

A 2016 survey by the University of Dar es Salaam suggests that 68.9% of small and medium enterprises (SMEs) were connected to the internet.²⁷ This might be an overly optimistic figure as most small businesses in Tanzania operate within the informal sector.²⁸ A more recent 2020 survey of youth entrepreneurs indicates that at most 53% of SMEs use online platforms to promote their businesses.²⁹ From consultations with stakeholders, it appears that SMEs in Tanzania are often hesitant to adopt digital technologies due to the risk of becoming 'visible' businesses, and therefore incurring the same taxation requirements as formal businesses. Digital literacy is also a key challenge as SMEs often lack the

knowledge to adopt and leverage digital technologies for business growth.

The tech start-up space is still very nascent. There were only 587 tech start-ups in the country as of 2021, and most are located in Dar es Salaam (Figure 12a and 12b). Businesses still require significant support and investment to leverage digital technologies in contributing to the growth of productive sectors of the economy. For example, start-up firms need access to open data sources for research and innovation to improve their products/services.

Figure 12a

Tech start-ups by sector

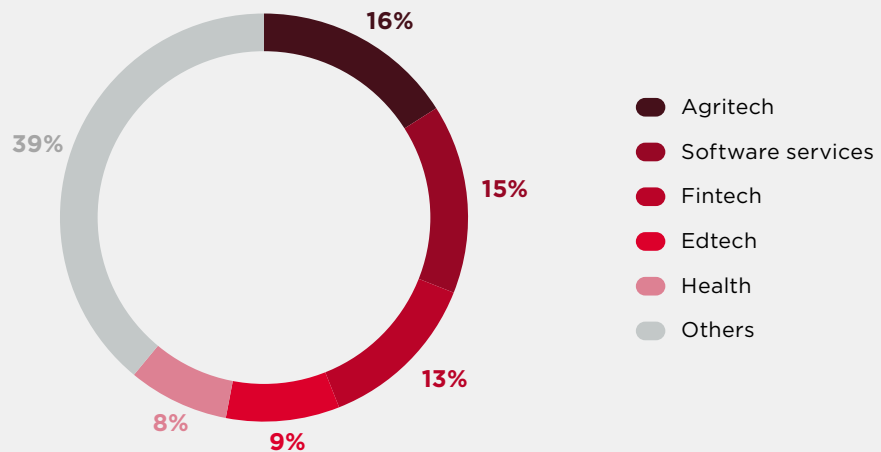
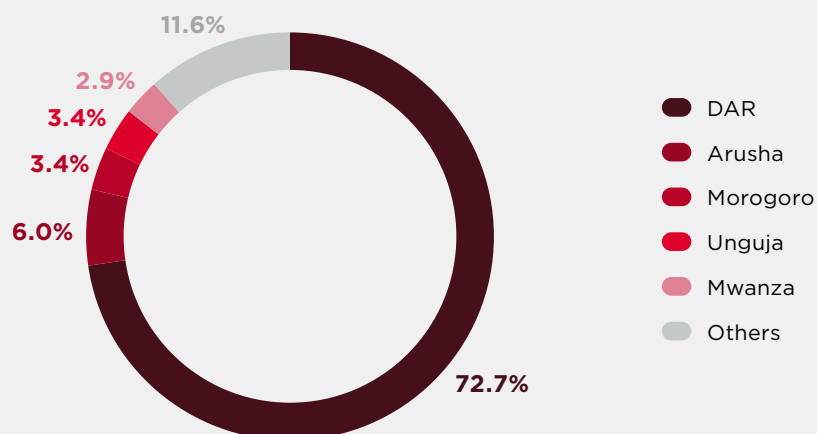


Figure 12b

Geographical spread of tech start-ups



Source: Tanzania Start-Up Association / Briter Bridges / International Trade Centre

27 Msuya, C.A., (2016), *Assessment of ICT Adoption and Use in Tanzania SMEs* AICC

28 Oxford Business Group (2018), *Tanzania seeks to quantify the informal economy*

29 DOT Tanzania (2021), *Digital Skills for Youth Employment and Entrepreneurship: Insights from the Tanzania Youth Digital Summit 2021*

Local enterprises however seem to have embraced the use of digital payments as part of business processes and this has contributed to the growth in

mobile money transactions. The volume and value of mobile money transactions is steadily on the rise, as shown in Figure 13.³⁰

Figure 13

Growth of mobile money in Tanzania

	2019	2020	2021
No. of transactions	3.02 billion	3.41 billion	3.75 billion
Value of transactions (TZS)	101.87 trillion	127.94 trillion	137.22 trillion
No. of mobile money subscribers	25.86 million	32.27 million	35.28 million

Source: TCRA



³⁰ These are not strictly B2B or B2C transactions, rather, total transactions by mobile money subscribers.

Adoption and usage: Government

There has been significant commitment and drive to promote e-government in Tanzania, and this has contributed to improved public service delivery across several services. There is still room for

improvement at the local government level as some processes are still manual (see Section 4 for further discussions on e-government).

Table 1: Examples of government services using digital technologies

Application/portal	Change
Government Mobile Platform Citizens Portal (m-GOV)	Enables public institutions to offer services via SMS and USSD channels. The platform has already integrated 225 public institutions. To date, over 318 million push messages have been sent out.
Government e-Payment Gateway (GePG)	Allows citizens to make person-to-government payments easily. It supports greater visibility and control over government revenue collection.
One stop shop	Managed by Tanzania Investment Center, it allows for business registration and regulatory compliance for new investors (investing over a specified limit) via a single online platform.
e-RCS and TANCIS	Supports online tax remittance.
Government e-Office System (GeOS)	Facilitates day-to-day government administrative processes involving movement of files and documents within and among public institutions.
Government Communication Network (GovNeT) and Government Mailing System (GMS)	Improved inter communication between agencies. GMS is used by 584 institutions.
Parliament online information system (POLIS)	Used to store various parliamentary information such as bills and laws, speeches and records of sittings of parliamentary sessions for greater transparency.
e-Ga Help Desk	A web portal that works as a single point of contact for providing ICT technical support 24/7 to public institutions. Users can create tickets and view status.
e-Vibali	Online system to facilitate administration of travel permits for public servants travelling outside the country.
Posta Kiganjani	Digital platform for national postal and delivery services.

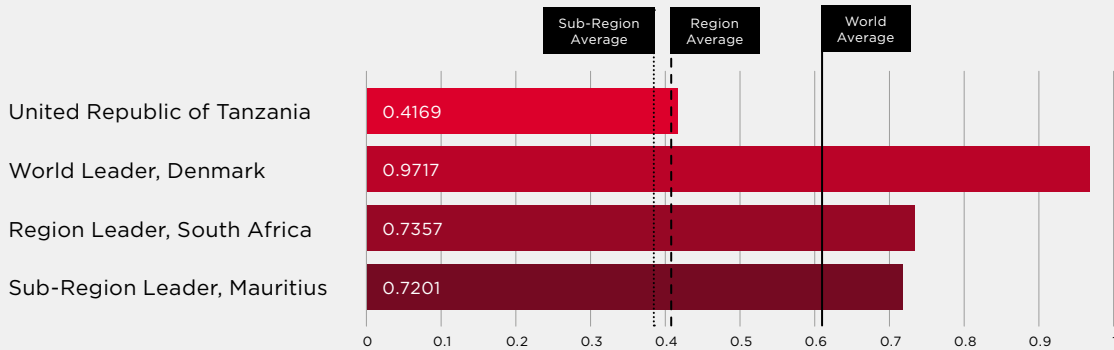
Source: e-Government Authority

Despite the introduction of these digital systems, the government could be further supported to extend the use of available digital technologies for better public service delivery. This could help the government achieve better scores in global rankings. According to the Global Innovation Index for 2022, Tanzania performs fairly well in the sub-indicator of government online services (scored 55.3 out of 100). This indicator assesses national website development

patterns for government agencies. On the other hand, Tanzania ranks low in the UN's e-government survey; ranked 153rd out of all UN member countries, with a score lower than the global average. The UN survey evaluates digital government patterns by examining the range and quality of online services, the state of telecommunication infrastructure, and existing human capacity to use these services (Figure 14).

Figure 14

UN E-government survey 2022³¹



Tanzanian citizens are often not aware of the e-services that are already available and do not have visibility on new e-services deployed by the government. For systems related to improving internal public sector operations and coordination, government officials often lack sufficient capacity

and broadband connection to maximise the use of these systems for greater efficiency. System interoperability and efficient integration of data sources is still lacking, which prevents policy making benefiting from informed analysis of reliable data.

Reflection

- Available digital infrastructure is currently underutilised, as shown by the widening usage gap. This underutilisation has made it difficult for the Tanzanian Government and MNOs to recoup costs and generate revenue.
- A lot of Tanzanians are unable to afford internet enabled devices due to high costs. Actors in the private and public sector should consider initiatives to allow greater access to smart devices to boost digital adoption/usage. Some of these might be market-driven, such as greater availability of prefinancing schemes (e.g. device payments in instalments). Other initiatives should be policy-driven, such as review of excise tax and any other associated levies on electronic communication services.
- The biggest barrier to digital inclusion now is on the demand side - to understand consumers and change user behaviour. The TCRA Consumer Consultative Council would be a good place to start.
- Enterprises are yet to fully adopt digitalisation in a productive manner that adds value to the digital economy. Upskilling is required, particularly for small firms in the informal sector.
- Adoption of e-government services is still slow, more so for regional and local government institutions. Public officials and citizens require greater awareness and education on existing government digital services.
- Strategies to promote greater system interoperability, data and systems integration and big data analysis are required.

31 See: [UN database](#)

2.3 Awareness and skills

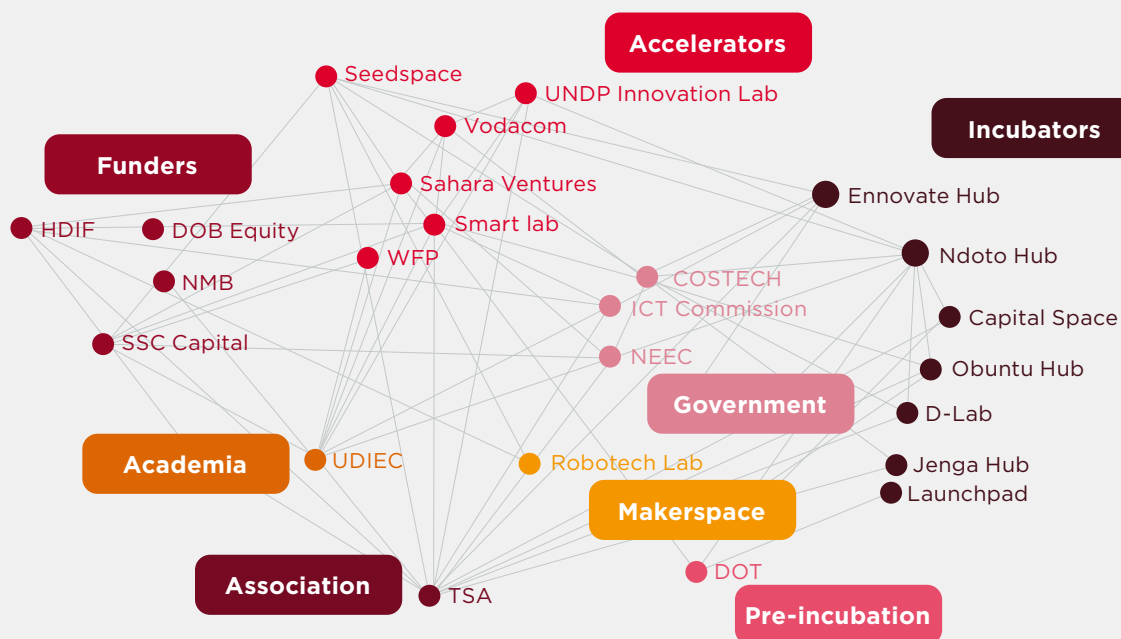
Full awareness of the benefits of digital solutions is a prerequisite for individuals, businesses and governments to adopt innovations. At the annual Tanzania Youth Digital Summit in 2020, 41% of attendees indicated that they lacked awareness of the benefits of the internet, and 99% indicated that they needed better digital skills to improve their business and career prospects.³² These findings align with the Digital Skills Gap Index (2021) by Wiley, which considers factors such as the existence of supporting educational institutions and the supply/demand of personnel with appropriate digital capabilities. Tanzania ranked 13th out of 26 African countries surveyed, with a score of 3.3 out of 10 for digital skills, indicating a low level of awareness and skills among the population.³³ Another index—Global Competitiveness Index—suggests a more favourable assessment of digital skills (computer skills, basic

coding, digital reading) among the Tanzanian population at 3.87; 7 being the highest score.³⁴

At the enterprise level, a 2019 poll showed that 41% of Tanzanian companies identified a skills gap as a constraint to competitiveness.³⁵ Although there is willingness and interest to foster innovation and tech entrepreneurship skills in the country through incubators, accelerators, training, and other capacity development providers, these programmes are usually small-scale interventions and mostly concentrated in a few urban locations. Most of the start-up programmes seem to only be able to provide support at the ideation stage, but such innovations are rarely able to scale up due to a lack of product development skills required to design solutions to local needs, and limited business management skills needed to grow and run a business.³⁶

Figure 15

Map of supporting organisations in Tanzania's tech start-up ecosystem



Source: International Trade Centre

³² Young people constitute more than two thirds of the country's population – over 40 million are estimated to be under 35 years old.

³³ See: [DSGI I Economy Profile of Tanzania](#)

³⁴ See: [GCI 4.0: Digital skills among population - TCdata360](#)

³⁵ European Commission (2019), [New Africa-Europe Digital Economy Partnership Report](#)

³⁶ In addition, stakeholders noted imitation of the Silicon Valley model for start-ups in Tanzania as a limitation as it does not fit in well with local context. Start-ups that have gone on to do well seem to have found a method of understanding and working with existing 'supposedly' fragmented structures and informal system.

While Tanzania has a National Skills Development Strategy, this does not have any specific focus on digital skills. In 2019, the Ministry of Education introduced a Framework for Technical Secondary School Education, which emphasises the importance of implementing digital technologies to facilitate teaching and learning practices. There are also other digital literacy initiatives in the country such as digital clubs in schools, teacher training capacity building on digital technologies, and government led campaigns such as #KweaKidijitali.³⁷ While these initiatives are important for empowering citizenry digitally, additional effort is needed to digitalise the education sector and embed relevant literacy

needs in the curriculum. Key barriers to digitalising the teaching and learning process in the country include inadequate teacher training on digital skills development and lack of access to digital facilities and technology in schools and at home.³⁸

Low digital literacy at the government level is also a challenge. Public sector employees struggle to use the new e-government systems being deployed across the country because they have not been provided with adequate training. Even though e-GA coordinates periodic digital and ICT trainings for staff of public institutions across the country, there is still a significant skills gap.

Reflection

- Need to revise the curriculum at the primary and secondary school level to incorporate courses on core digital skills and invest in basic digital skills programmes leveraging community centres, libraries, post offices, or other existing social structures. Also, consider partnering with the private sector to provide much needed upskilling support.
- Investment is required to expand access to digital devices and resources in public schools, such as supplying schools with enough laptops, personal computers and mobile devices (portable mobile devices would allow students to practice new skills even after school hours).
- Need for specially designed digital literacy programmes for entrepreneurs operating in the informal sector.
- Innovation support hub initiatives are still quite small and fragmented. Better coordination is required for greater sustainability.
- Inadequate support structures for start-ups beyond early-stage or pre-revenue stage, as entrepreneurs often struggle to implement sustainable business models afterwards.
- Tech start-ups require digital upskilling on product development, investor readiness and marketing.
- Need to train public sector officials on the use of e-government tools.

³⁷ Social media awareness campaign dubbed Go Digital. Provides tips on how to stay safe online, among other issues.

³⁸ Manyengo, P.R., (2021), [Digitalization in teaching and education in the United Republic of Tanzania](#) ILO

2.4 Online freedom and data protection

Trust is a fundamental element of expanding digital adoption and fostering a secure and reliable digital economy. Cybersecurity and data protection policies can help build trust in engaging in digital transactions and protect the openness of the digital space.

The approach to digital governance in Tanzania is seemingly tilted towards regulatory extremism, resulting in reported cases of digital rights abuse.³⁹ While protection of national security is paramount, there is some indication that mass surveillance strategies might be driven by politically motivated factors.⁴⁰

Although legislation on cybersecurity and electronic communications is in place, there is a need to enhance trust and promote safe digital communication through greater online freedom. For example, the last political elections in 2020 saw prolonged internet shutdown, arrests of citizens for online advocacy and censorship of media websites. Such practices tend to restrict innovation and exchanges of ideas in the digital space.⁴¹ Promoting political freedom online can be achieved through effective implementation of the Cybercrimes Act, while also using the same Act to stop the spread of misinformation.

While not widely or officially reported, the issue of online harassment and online gender-based violence is considerable in Tanzania, and contributes to the digital gender divide.⁴² Civil society organisations (CSOs) continue to advocate for digital rights and raise awareness on these issues. However, several stakeholders working in that space indicate that

Tanzania still lacks a strong ecosystem of NGOs and CSOs working specifically on digital rights and online security, with improvements dependent on individual efforts from a few advocacy leaders.

There have also been initiatives to create digital identification as a means of authenticating users of mobile and digital services in the country to reduce the likelihood of digital fraud or cybercrimes. SIM card biometric registration became mandatory in 2020 and since then, users have been required to provide their national identity number. The National Identification Authority (NIDA) has registered over 22 million adults.⁴³ With their national identification number, citizens are able to gain access to both online and offline services.

However, online fraud still exists. Moreover, concerns have been raised by CSOs for the justification for multiple identification processes (e.g. national voters identity card, SIM card registration and national identity card), and the processes to collect personal data. There are also concerns that these identification systems further enable the government to conduct mass surveillance and track individuals' online activities and communication. Given the absence of a data protection and privacy law, there is no clarity on accountability for any breach in disclosure of personal information.⁴⁴ The Registration and Identification of Citizens Act has a non-disclosure provision with no corresponding penalty.⁴⁵ There is also limited transparency on the nature of data sharing activities entered into by NIDA.

Reflection

- Due to perceived digital rights abuse, there is a sense of distrust by citizens, impeding their digital freedoms and engagement in the digital space. Existing legislation is yet to provide citizens with sufficient data protection, security from online fraud, comfort and trust.
- Advocacy on citizens' awareness and protection of their digital rights and responsibilities is required.
- There is a need to refocus the digital governance approach to be progressive such that it promotes digital freedoms and supports greater trust and adoption of digitalisation rather than build distrust.

39 CIPESA (2020), [State of Internet Freedom in Africa 2020: Resetting Digital Rights Amidst the Covid-19 Fallout](#)

40 CIPESA (2021), [State of Internet Freedom 2021: Effects of State Surveillance on Democratic Participation in Africa](#)

41 Access Now (2020), [Shutdown victim stories: Tanzania is weaponizing internet shutdowns. Here's what its people have to say.](#)

42 Insights from key informant interviews.

43 ITU (2021), [Tanzania – A solid base for moving to G5 regulation](#)

44 A Personal Information Protection Bill sponsored by the Ministry of Information, Communication and Information Technology, was recently passed by the parliament and is expected to be signed into law soon. This was not the first time that the Tanzanian Government has tabled a data protection bill though. There have been two failed attempts at passing a data protection law in Tanzania: the first attempt was in 2006 and the second, in 2014. In 2006, the Freedom of Information Draft Bill was rejected by stakeholders because of ambiguous terminologies. In 2014, the Data Protection Bill was criticised for being inoperable. It is therefore expected that lessons from the past attempts have been taken into consideration.

45 Boshe, P. (2021), [Digital Identity in Tanzania: Case study conducted as part of a ten-country exploration of socio-digital ID systems in parts of Africa](#) Research ICT Africa

03

Current state of digitalisation: Adoption of emerging technologies



Adoption of emerging technologies such as AI, big data analytics, blockchain, robotics, machine learning and 5G, is at a nascent stage in Tanzania. The country's readiness for commercial deployments for

these technologies remains low, and only a few pilots are currently ongoing.⁴⁶ The country needs a strategy and detailed roadmap on how it plans to support the implementation of technologies.

3.1 Preparedness for 5G and advanced connectivity

5G networks bring substantial improvements over 4G networks, including higher connection speeds, greater capacity, greater performance, and potential for unlocking the full capabilities of other emerging technologies, such as the Internet of Things (IoT), that could positively revamp Tanzania's productive sectors.⁴⁷

The GSMA's 5G market readiness assessment framework provides a picture of Tanzania's state of 5G preparedness. The framework evaluates over 160 countries based on six categories of indicators; Basic (e.g. population density and urbanisation), Economic (e.g. gross domestic product growth rate), Market (e.g. 4G availability), Enterprise (e.g. use of IoT), Consumer (e.g. affordability of 5G devices), and Spectrum (e.g. availability of 5G spectrum).⁴⁸ Using a traffic light system to indicate three broad levels of readiness, Tanzania is categorised as red, indicating that the country is not ready for 5G roll out and adoption. Some of the factors contributing to the lack of readiness include low urbanisation, low average income levels, limited penetration of internet broadband and 5G capable smartphones, low demand from enterprises, consumers' lack of advanced digital skills, very limited use of IoT, and limited availability of spectrum.⁴⁹

Tanzania is still missing critical elements necessary for the deployment of 5G commercially. Lessons from 4G adoption in the country show that despite considerable 4G network coverage across urban areas, there remains a significant mismatch between supply and demand.⁵⁰ The adoption rate has been abysmal due to the high cost of devices and low availability of 4G-enabled products and services.

Unlike previous generations of mobile technology, 5G requires high density networks, implying that significant investment would be required to build additional sites and towers. Meanwhile, MNOs are yet to fully recover the investments made on 4G.

In Africa, South Africa has experienced the greatest growth of 5G penetration driven by demand from the business sector. The high level of informality in Tanzania's business sector has so far constrained demand for 5G services. Besides a demand drive, a roadmap for 5G deployment requires spectrum clearance and an approach to spectrum valuation and allocation. MNOs also need to be ready to pilot-test the technology.

⁴⁶ Refer to idealab.ai (aiilab.co.tz) and [Mary.Africa | African Intelligence](https://www.mary.africa) for some examples of pilots.

⁴⁷ [The socio-economic benefits of mid-band 5G services.](#)

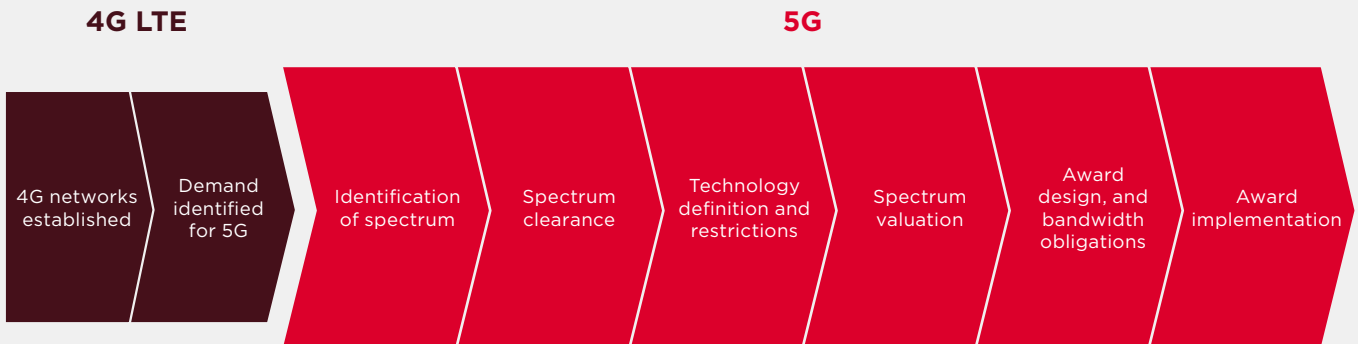
⁴⁸ For a full list of the indicators, refer to GSMA's report on [5G in Sub-Saharan Africa](#)

⁴⁹ 5G spectrum here refers to a range of radio frequencies that carry data from user equipment to cellular base stations to the data's endpoint.

⁵⁰ As of Q4 2022, 4G network coverage was at 55% of the population, however only 15% of all mobile subscriptions are linked to a 4G network.

Figure 16

Universal roadmap for 5G deployment



Source: GSMA⁵¹

5G networks rely on access to a variety of spectrum resources to support a range of applications and services. Low bands provide indoor reach; mid-bands provide a balance of coverage and capacity; and high bands can provide capacity in densely populated urban areas and in factories. To date, mid-band spectrum in both lower mid-bands (i.e. 1500MHz, AWS, 1800MHz, 1900MHz, 2100MHz, 2300MHz and 2600MHz) and upper mid-bands (i.e. 3.3–4.2GHz, 4.5–5.0GHz and 5.925–7.125GHz) have been the most commonly used around the globe to launch 5G networks.⁵²

To develop the digital economy, in May 2022, the Ministry of Information, Communication and Information Technology (MICIT) announced that the government was ready to allow investments in 5G network trials.⁵³ While this move might be premature, the country appears to be committed to pushing 5G deployment. In response to the ministry’s call, in September the nation’s biggest MNO, Vodacom, officially launched the first non-standalone 5G service.⁵⁴ Vodacom plans to deploy the network across multiple sites in Dar es Salaam, Zanzibar, Arusha, Dodoma, Mwanza, Iringa, Kagera, Njombe, and Mbeya.⁵⁵ The network will be made available to its fixed network customers using 5G routers, while smartphone users with 5G capable devices will be able to access the mobile network.

Companies such as Huawei could play a major role in leading the charge for 5G deployment in Tanzania, considering that it was one of the three major manufacturers involved in building 4G network infrastructure for MNOs in the country, and the government-owned TTCL historically favours Huawei for digital infrastructure expansion projects.⁵⁶ Ericsson, a Swedish telecommunications networking company, also built 4G networks in Tanzania, has a presence in-country and is likely to be part of the 5G roll out. Nokia is another 5G network manufacturer with existing history in Tanzania’s 4G space. It is worth noting that there is a possibility for governments of multinational 5G infrastructure companies to exploit such companies’ presence in a new market as a means for intelligence gathering and surveillance, where strong ties exist between the government and the private sector. Such a scenario could further be used to transfer and diffuse the digital governance approach of the host governments, potentially exacerbating the fragile state of online freedom of countries such as Tanzania.

The TCRA recently conducted an auction to assign spectrum licenses in the 700MHz, 2300MHz, 2600MHz, and 3500MHz bands.⁵⁷ Despite ongoing 5G developments in the country, realistically the impact of 5G is unlikely to materialise in Tanzania in the immediate future.

51 Miller, T. et al. (2022), [Roadmaps for awarding 5G spectrum in the APAC region](#) GSMA

52 Source: GSMAi

53 The Citizen (2022) [Tanzania opens doors for 5G investment](#)

54 Non-standalone 5G is the first stage of 5G, using a new 5G radio (or 5G NR) access network overlaid on an existing 4G LTE network core.

55 TanzanialInvest (2022) [Tanzania Launches 5G Mobile Network](#)

56 TanzanialInvest (2015), [Tanzanian and Chinese Telecom Companies Sign USD 182 Million Deal To Build Landline And Mobile Networks](#)

57 TCRA (2014), [Notice of Intention to Release Spectrum in IMT Bands Through an Auction Process](#)

3.2 Enablers for 5G deployment

The following factors can facilitate investment in 5G and encourage adoption:

Drive demand

- Development of e-government services to stimulate demand
- Support start-ups/technology sector broadly to drive demand for 5G-enabled services/technologies
- Drive the formalisation of Tanzanian businesses

Reduce capital cost

- Ease financial demands of 5G by bringing down costs e.g. by granting access to RoW to public facilities at reasonable fees, and revisiting sector-specific taxes
- Shorten procedures for site acquisition or upgrades of base stations
- Allow the option of offering network-as-a-service⁵⁸ to business customers through outsourcing of infrastructure and voluntary spectrum sharing or pooling

Ease regulation

- Allow for regulatory flexibility to accommodate different sustainable propositions that can advance 5G deployment
- Release sufficient spectrum for 5G on a fair basis, in a harmonised and affordable manner
- Support pilot testing for use cases
- Revise regulatory frameworks to incorporate use cases enabled by 5G
- Enact appropriate policies to ease and expedite fibre rollouts



⁵⁸ Analytics Steps (2022), [What is Network-as-a-Service \(NaaS\) and its Benefits?](#)

3.3 Artificial intelligence

Unlocking the potential of AI depends on the availability of high-quality data that is truly representative of the population to avoid bias and errors. It also requires the existence of core infrastructure, capable of collecting, storing, transferring and processing large amounts of data faster than traditional data systems.

According to the Government AI Readiness Index, Tanzania has a score of 32.69 out of 100, just above Sub-Saharan Africa's average but still low compared to countries globally.⁵⁹ While the Five Year Development Plan (FYDP) III mentions emerging technologies such as AI and blockchain, it does not lay out an implementation plan. There is currently no national AI strategy for Tanzania.

Tanzania's AI ecosystem remains nascent and depends on a narrow pool of talent. AI solutions are currently being prototyped and piloted in sectors such as education, health, fintech and agriculture,⁶⁰ but very few—if any—have managed to scale. Innovation hubs and accelerator programmes such as Tanzania AI Lab, AI Commons and Sahara Ventures support the development of the ecosystem.

Tanzanian start-ups leveraging emerging technologies operate in a highly unregulated environment and often struggle with commercial viability and financial sustainability.⁶¹ Specific sectors are better positioned to take advantage of the benefits AI can bring, depending on whether they are identified as key priorities for the government. For instance, the Ministry of Health is currently drafting an AI policy framework and is eager to understand how emerging technologies can help the sector advance.⁶²

To foster AI adoption, Tanzania must move on from siloed approaches and implement a national AI strategy. This will entail showcasing the value that emerging technologies can bring to the development of the country across sectors, while aligning with the government's interests and agenda. Leveraging these technologies will also require narrowing the skills gap and lowering barriers to entry for tech innovators to ensure there are strong hubs of AI excellence.

Reflection

- The foundational elements for full commercial roll out of 5G is missing (primarily adequate demand and a comprehensive deployment roadmap). The country needs to address the underlying barriers preventing it from being market ready.
- The country needs to define a plan that identifies the objectives for adopting emerging technologies, including an implementation plan and roadmap in order to maximise the opportunities that these technologies offer.
- The demand for digital solutions built upon emerging technologies is low. At the same time, on the supply side, Tanzania lacks requisite skills and expertise in technologies such as AI.
- Availability of relevant and accurate data can pose an obstacle for the adaptation and scaling of AI technology in the country.

⁵⁹ Oxford Insights (2021), *Government AI Readiness Index 2021*

⁶⁰ Mtambalike, J.R., (2021), *Making Artificial Intelligence Solutions Work in Tanzania: Lessons from IdeaLab AI Project*, Sahara Ventures, Medium

⁶¹ These start-ups benefit from subsidies and funding support from foreign development partners such as the UNDP, and accelerator programs.

⁶² The health sector appears to be a forerunner, building on the country's Digital Health Strategy policy.

04

Current state of digitalisation: E-government services



The successful implementation of e-government⁶³ initiatives depends on supporting laws and regulations, sufficient infrastructure and systems, and institutional backing. To guide e-government strategy and strengthen the use of digital technologies for efficient public administration, Tanzania has in place legislation and regulations such as the e-Government Act 2019, Tanzania e-Government Strategy 2013, e-Government General Regulations 2020 and the e-Government Interoperability Framework 2016.⁶⁴ e-GA coordinates the implementation of these

policies and sets standards and guidelines for public institutions to follow when offering e-services to citizens, businesses, and employees.

The government has invested in expanding digital infrastructure and systems in public institutions, with the support of donor funding. The government's commitment and drive to promote e-government initiatives has contributed to improved public service delivery across several services, as highlighted in Section 2.2 and Case study 1.

Case Study 1: GePG's success in curbing revenue leakage

Description: Centralised mobile and web-based e-payment gateway introduced in 2017 for government revenue collection and monitoring. Public institutions can connect their billing systems to the GePG; payment services providers' platforms are also integrated with the GePG, allowing citizens/businesses to conveniently pay for public services via the GePG app, and public institutions can generate invoices and revenue reports.

Progress: The GePG is perhaps the most widely used e-government tool in the country. As of October 2022, statistics from the GePG platform indicate that 948 public institutions are connected to and use GePG for billing and reporting, up from 7 institutions at commencement.⁶⁵ Twenty-eight out of the 36 commercial banks in the country are also connected to GePG, including all seven MNOs operating in Tanzania. The mobile app has over 100,000 downloads.

Benefits: The biggest success of the GePG is the enhanced revenue control and greater visibility of government funds which have contributed to increased revenue. A study of 271 public institutions across the country found that the use of the GePG increased revenue collection by approximately 44%, while reducing the associated costs by 27% as of the 2019/20 financial year.⁶⁶ Other indicators of success achieved include reduced reconciliation efforts and time, real-time revenue report generation, catalyst for growing adoption of e-payments, avoidance of duplication of government infrastructure, increased transaction volume for payment service providers and flexibility/time savings for payers.⁶⁷

The government's efforts are however sometimes limited by time-bound projects and focus on a few sets of actions that are essential but targeted at producing specific outputs. Focusing on a single and short-term project means that many auxiliary e-services are neglected, systemic issues are not addressed, and services deployed are not sustainable. The government could be guided to shift to implementing effective digital public services that are responsive to the needs of the population, through a dedicated and multidisciplinary team tasked with improving digital public service delivery over a long-term period.

In addition, efforts could focus on actively engaging users from pre- to post-design phases of digital

products or services.⁶⁸ There are opportunities to tailor services to users' needs, and leverage real-time feedback to ensure the usefulness of digital services deployed and continuous iteration to improve public e-services in the country. Making relevant services more visible and easier to find for users may entail unifying them on a single government platform. A robust, user-focused e-government ecosystem is essential to ensure meaningful usage and satisfaction among all users, including vulnerable groups, and can only be achieved through continuous monitoring of usage and engagement with users.

Additional considerations for strengthening e-government in Tanzania are discussed below.

⁶³ It involves use of digital tools and systems to support internal government processes and quality public service delivery to citizens, businesses, government employees and public sector institutions.

⁶⁴ See: [e-GA | Publications](#)

⁶⁵ See: [Government Electronic Payment Gateway | Statistics](#)

⁶⁶ Mtebe, J. S., & Sausi, J. (2021). [Revolutionization of Revenue Collection with Government E-Payment Gateway System in Tanzania: A Public Value Creation Perspective](#). East African Journal of Science, Technology and Innovation, 2(3)

⁶⁷ See: [GePG Benefits](#)

⁶⁸ Kinemo, S.M., (2019), [Local Government Capacity on E-Participation in Tanzania](#) Journal of Public Administration and Governance

4.1 Increased capacity and resources to monitor progress and coordinate interventions

Digital investment in e-government could be better coordinated. At the national level, the e-Government Act, 2019 requires the establishment of a steering committee (comprising representatives from various ministries) to provide strategic and policy direction required to drive the transformation of public service delivery and administration through digitalisation.⁶⁹ At the time of writing this report, the committee is not yet operational.⁷⁰ At the institutional level, the e-Government Guidelines of 2017 requires all public institutions to prepare and implement an ICT strategy and a steering committee to set out a clear focus on using ICT for better service delivery. Compliance with

this requirement could be higher, and, where such strategies or committees exist, they could be more effective.⁷¹

There is also a need to ensure that public institutions fully understand and comply with set guidelines. Since performance management systems are not mature, accurate tracking and monitoring of e-government goals/performance across public sector institutions is challenging. Another challenge affecting e-GA's capacity to coordinate e-government initiatives is insufficient expertise and budget to perform its functions.⁷²

4.2 Enhanced systems interoperability

Prior to the introduction of e-GA's guidelines on institutional electronic data exchange and standards on data formats for systems design in 2021,⁷³ public administration databases were frequently deployed in isolation and the data exchange between Ministries, Departments and Agencies (MDAs) was slow and inefficient. The approach adopted in the design of ICT systems deployed by individual MDAs did not always account for data sharing and system integration, resulting in multiple data formats and descriptions. The implication was a lack of interoperability and effective data sharing between MDAs.

Even with the introduction of standards and data formats by e-GA to guide the design of digital equipment or applications procured by public institutions, and the regulatory requirement to obtain approval from e-GA through the Government ICT

Service Portal to check compliance with standards before new systems are deployed, there are still instances of government agencies not complying with the standards and deploying systems that are not interoperable or that lead to duplication of applications.⁷⁴ Delays in obtaining e-GA's approval is also a deterrent to compliance.

To harmonise and link pre-existing systems and applications deployed prior to the issuing of the standard data formats, the government has deployed a Government Enterprise Service Bus (GOVESB),⁷⁵ a centralised software architecture that can integrate or connect different applications and systems that use varied protocols and data models. An estimated 50 platforms have now been connected to the GOVESB, and many more remain unconnected.

69 The United Republic of Tanzania (2019), [The e-Government Act 2019](#)

70 National Audit Office, United Republic of Tanzania (2022), [Annual General Report of the Controller and Auditor General for the Information Systems Audit](#)

71 United Republic of Tanzania (2017) [E-Government Guidelines](#)

72 United Republic of Tanzania (2021) [e-Government Authority Strategic Plan 2021/2022 - 2025/2026](#)

73 See: [e-GA | Standards and Guidelines](#)

74 National Audit Office, United Republic of Tanzania (2022), [Annual General Report of the Controller and Auditor General for the Information Systems Audit](#)

75 United Republic of Tanzania (2022) [Criteria for Data Sharing and Exchange through Government Enterprise Service Bus. The idea was borrowed from Estonia.](#)

While the GOVESB technology has its benefits, there are drawbacks. For instance, because the GOVESB serves as a single system for multiple institutions, performance speed is slow due to over-abstraction of individual systems connected to it. Since the GOVESB is centrally managed, institutions must wait in line before updates to their applications can take effect. Making changes or enhancements to one platform

connected to the GOVESB can often destabilise others. Updates to the GOVESB itself also often affects other systems. As the volume of integrations grow, multiple dependable cloud systems and connectors will be required to strengthen the GOVESB servers, and this can become costly. As a multi-institutional platform, funding for these costs will have to be considered and resolved.

Case Study 2: Examples of inadequate integration of application systems at the institutional level⁷⁶

System name: Government of Tanzania Hospital Management Information System (GOTHOMIS)

Description: Web-based computer application used by local government health facilities. The system manages health facility operations such as recording of patient information, medications and medical supplies records, and managing bills and payments.

Interoperability gap: Inadequate integration of GOTHOMIS with the national GePG system for electronic payment collection - only 8 out of 921 local government health facilities are integrated. As a workaround, cash payments are made by patients for healthcare services. GOTHOMIS is also not fully integrated with the National Health Insurance Fund (NHIF) membership system for automatic verification of members. An NHIF membership card is therefore required for physical verification by officials who then input the information into GOTHOMIS. Both instances could pose revenue leakage risks due to inefficient physical cash payment and the possibility of providing services to non-members of NHIF.

System name: Loan Management System (LMS) used by the Higher Education Students' Loans Board (HESLB)

Description: Used by HESLB for student loan allocation and disbursement.

Interoperability gap: LMS is not integrated with information systems run by agencies (such as the Registration, Insolvency and Trusteeship Agency, Zanzibar Civil Status Registration Agency, and relevant higher institutions) that can ensure automatic validation and verification of the submitted documents instead of current manual verification. This can cause fake certificates to go undetected, hence allocating loans to ineligible applicants.

⁷⁶ National Audit Office, United Republic of Tanzania (2022), *Annual General Report of the Controller and Auditor General for the Information Systems Audit*.

Case Study 3

Examples of inadequate integration of centralised application systems⁷⁷

System name: Mfumo wa Uhasibu Serikalini (MUSE)

Description: Centralised finance and accounting system.

Interoperability gaps: MUSE is not linked to supporting applications systems that aggregate accounting-related data such as the Tanzania National e-Procurement System (TANePS) – a procurement system containing contract details and amounts agreed with suppliers, Human Capital Management Information System (HCMIS) – a payroll management tool with personnel data and information regarding employee benefits, and Government Asset Management Information System (GAMIS) – for managing financial transactions associated with fixed assets. The absence of these integrations increases the risk of financial reporting and compliance errors.

4.3 More effective and suitable digital systems

A key challenge of e-government systems and applications in Tanzania is their inability to fully incorporate or match actual functions, operational processes, services, information flow, and needs of public institutions. In such cases, systems automate only certain parts of a public institution's operational process due to a lack of clarity and ownership of the entire process. This means that manual intervention is then required. This further implies that the data generated by these systems is incomplete, impeding effective data sharing.

Technology providers (usually foreign vendors) often propose non-standard solutions and exploit vested interests to their advantage, including offering multiple systems that perform similar functions but are deployed separately, rather than synchronised into one platform. There are also instances where vendors do not provide adequate documentation and training to guide users of such systems. Given the shortage of local resources and experts with sufficient technical know-how, technology vendors also tend to influence prioritisation of infrastructure deployment, with little input from public institutions.

⁷⁷ National Audit Office, United Republic of Tanzania (2022), [Annual General Report of the Controller and Auditor General for the Information Systems Audit](#)

Case Study 4: Application systems performing similar functions

Ministry of Agriculture - fragmented applications

Systems Functionality	Name of Application						
	Agricultural Trade Management Information System	Mobile Kilimo	Agriculture Routine Data System	Farmers Registration System	Agricultural Sector Stakeholders Database	Agricultural Information Dashboard	Crop Stock Dynamics System
Farmer registration		✓	✓	✓			
Stakeholder registration	✓	✓			✓	✓	
Crop registration	✓	✓		✓			✓
Collecting and reporting agricultural statistics		✓	✓	✓		✓	✓
Extension officer registration and performance monitoring		✓	✓	✓			

Source: National Audit Office (2022)

Ministry of Education - fragmented applications

Systems Functionality	Name of Application		
	School Quality Control System	Teacher's College Admission System	Teacher's College Management System
Institution/college registration	✓	✓	✓
Online application		✓	
Institution assessment	✓		
Student registration			✓

Source: National Audit Office

Case Study 5: Design flaws in e-government systems⁷⁸

System name: Business Registration and Licensing Agency (BRELA) Online Registration System (ORS)

Description: The ORS was deployed in 2018 to automate the process of registering and licensing new business entities for greater efficiency and ease.

System flaws based on review by the National Audit Office⁷⁹:

- Due to poor configuration of the message queuing functionality, the system is not always able to assign submitted applications to officers, nor ensure that applications are treated on a first-come-first-serve basis. The resultant effect is delayed responses and, in some cases, applications are not attended to at all. As of October 2021, 86,000 applications out of a total 281,000 submitted via the ORS were not attended to. In addition, 88% of applications made were delayed. There were also a number of paid for services worth TZS 1.5 billion mostly related to custom and standard searches for business names, which were not delivered/provided by BRELA due to failure of the ORS during check-out.
- Since its inception, the ORS has had frequent service outage incidences, maintenance requirements, and re-design needs which result in it being unavailable to users. Since it only has a primary site and no secondary recovery site serving as a backup during disasters or maintenance, the ORS is susceptible to data loss. A ransomware attack in 2019 on the ORS resulted in an outage of services for multiple days as well as data loss. Maintenance carried out during 2021 also resulted in the site being down for three days.
- ORS notifications to applicants are only sent via email, contrary to the design objective to also send SMS notifications. Such an approach limits applicants from acting in time on comments raised on their applications, which is one of the factors contributing to delays in processing/finalising applications.
- Physical files or business records on companies registered before the introduction of the ORS are yet to be fully automated or transferred to the ORS. Only 21,000 of 140,000 manual files have been updated.
- BRELA's ORS is envisaged to be integrated with 17 government information systems to enable officers access to relevant information while reviewing an application. However, the ORS was inadequately designed for full integration with other systems, i.e., the application programming interface (API) is only capable of accommodating nine applications. Currently, the ORS is only linked to the National Identification Authority (NIDA) and Tanzania Revenue Authority (TRA). Limited capacity to integrate with other authorities delays the process of business registration because officers resort to manual verification of compliance documents.
- The application modules were not properly implemented in the systems, hindering users from accomplishing their activities efficiently. For example, the vendor did not provide a Help Desk Module to provide guidance and troubleshoot problems related to the functioning of ORS. The improvised helpdesk feature eventually added does not automatically generate ticket numbers for every reported problem and is unable to assign the reported problem to the technical personnel, or track the progress of complaints made.

One of the reasons for design inefficiencies in the ORS is that the system was designed remotely with limited input from the local project management team. Detailed training of BRELA staff before commissioning was also inadequate. The contract stipulated 25 days of training activity, but eventually, the training was conducted over a four day period. Due to employees' lack of familiarity with the ORS, it had to be managed by the vendor for an extended period after deployment.

⁷⁸ National Audit Office, Republic of Tanzania (2022), [Online Registration System](#)

⁷⁹ ICT System Review ORS Report by e-GA, 2019 and Enhancing ORS Assessment Report by National Internet Data Center, 2020

4.4 Improved resource utilisation

E-government infrastructure remains underutilised. This trend is attributable to inadequate sensitisation and training of public sector staff. E-government initiatives also face connectivity challenges. Approximately 300 public sector institutions have broadband access, representing a little over 20% of MDAs and local government agencies, and the connection is not always stable.⁸⁰ Most of the unconnected institutions are in non-urban areas. Similarly, many citizens lack basic digital skills and are unaware of available e-government services, are unconnected, and cannot afford internet-enabled

devices to access and use public services. With such low levels of usage, it becomes difficult to get reliable customer feedback to improve service delivery.

Non-technical public sector staff require a training needs and skills gap assessment to guide the development of a training plan to support officials with basic digital skills on how to use e-services. Technical training and upskilling are also required for network engineers, software business analysts, cybersecurity database specialists and cloud management support teams, among others.

In view of these lingering challenges, there is an urgent need to:

- Strengthen e-GA's expertise and human resource capacity to effectively regulate e-government initiatives and provide much needed support to MDAs and other public agencies;
- Embed digitalisation in all aspects of national development, which should be reflected in budgetary spend so there is less reliance on external parties;
- Take a user perspective in the design and development of online public services through e-participation tools such as e-forums, e-polls, and e-questionnaires to get user feedback;
- Unify infrastructure and systems to support integration, interoperability, and sharing of existing e-resources and information; and
- Build internal capacity for the supply of technology.

Reflection

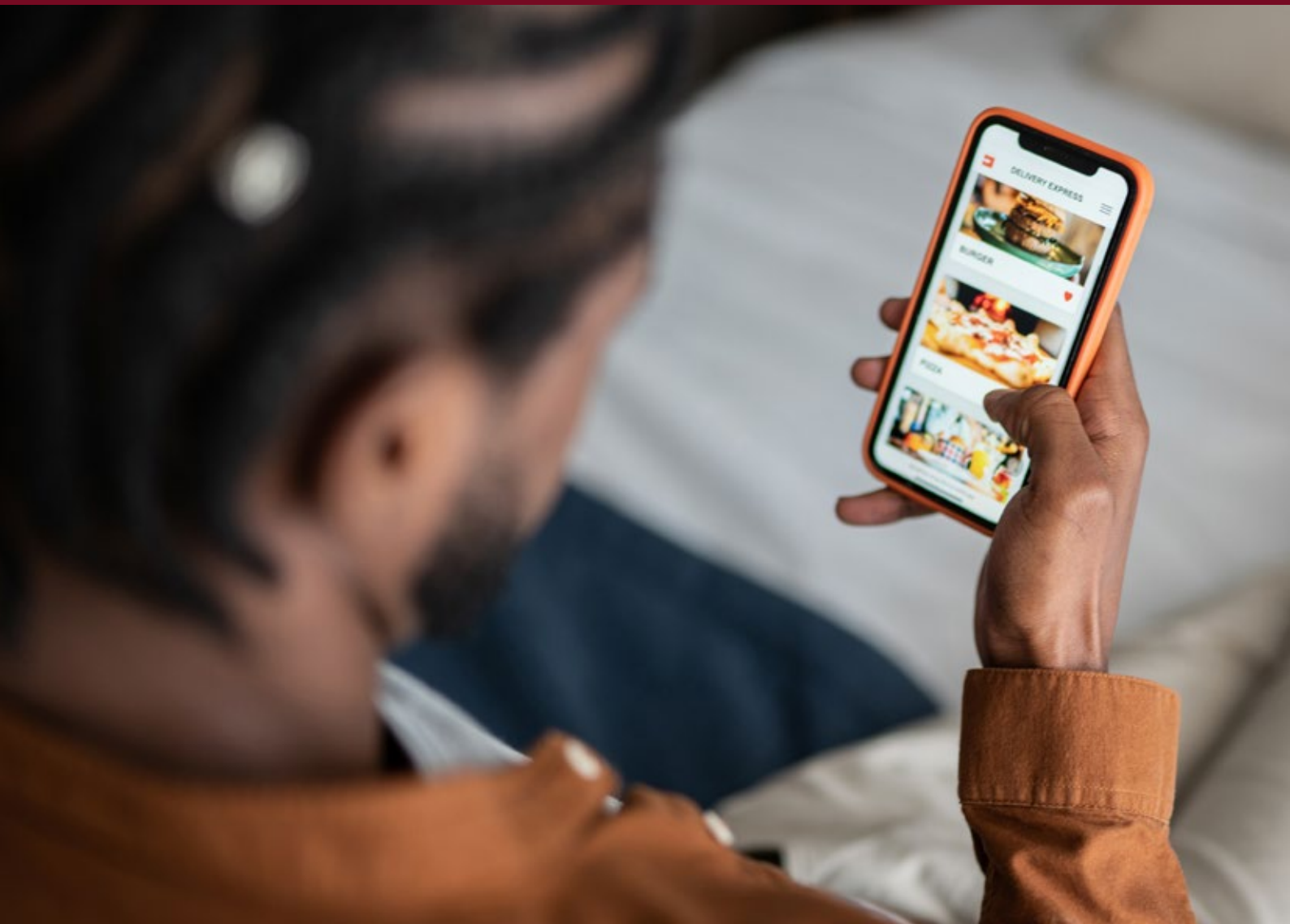
- Need to adopt a people-centred approach for the delivery of digital public services and to ensure services are tailored to the needs of the population, including those most likely to be left behind.
- Technical guidance in strategic planning and coordination for e-GA. This can include capacity building initiatives for both e-GA staff and ICT officers at public institutions, and advice on best practices for developing reliable systems to track performance.
- Advisory support on how to create standards and frameworks to allow interoperability, which will in turn help guide strategy for harmonisation and integration of isolated government digital systems.
- Need for a single integrated government website⁸¹ that offers a one-stop journey and end-to-end services built around users' needs, rather than one website per government institution where users need to be conversant with the various parts of government.
- Focused, in-depth and accurate mapping and documentation of business processes in key public institutions, with a view to informing digital reform initiatives.

⁸⁰ Source: e-GA

⁸¹ The central government website (<https://www.tanzania.go.tz/#onlineServices>) has a section that groups e-services for the public into various categories, but this can be improved upon.

05

Current state of digitalisation: Domestic e-commerce

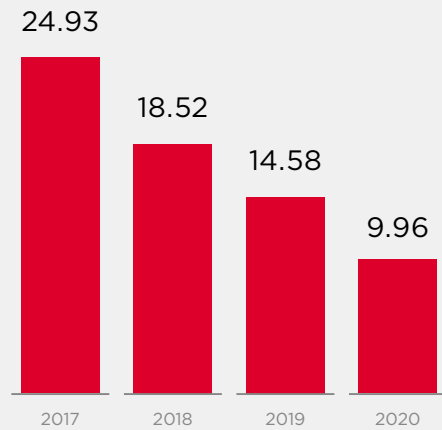


E-commerce⁸² has the potential to boost economic development by creating employment opportunities, diversifying income streams, and establishing new value chains and market linkages. Despite Tanzania having a considerable consumer base due to its population size and mobile money penetration, the country's e-commerce opportunity remains largely untapped. The exit of international digital platforms such as Jumia—the largest e-commerce platform in Africa⁸³—and introduction of taxes on electronic transactions are possible factors that may have contributed to a decline in the volume of e-commerce transactions (see Figure 17).

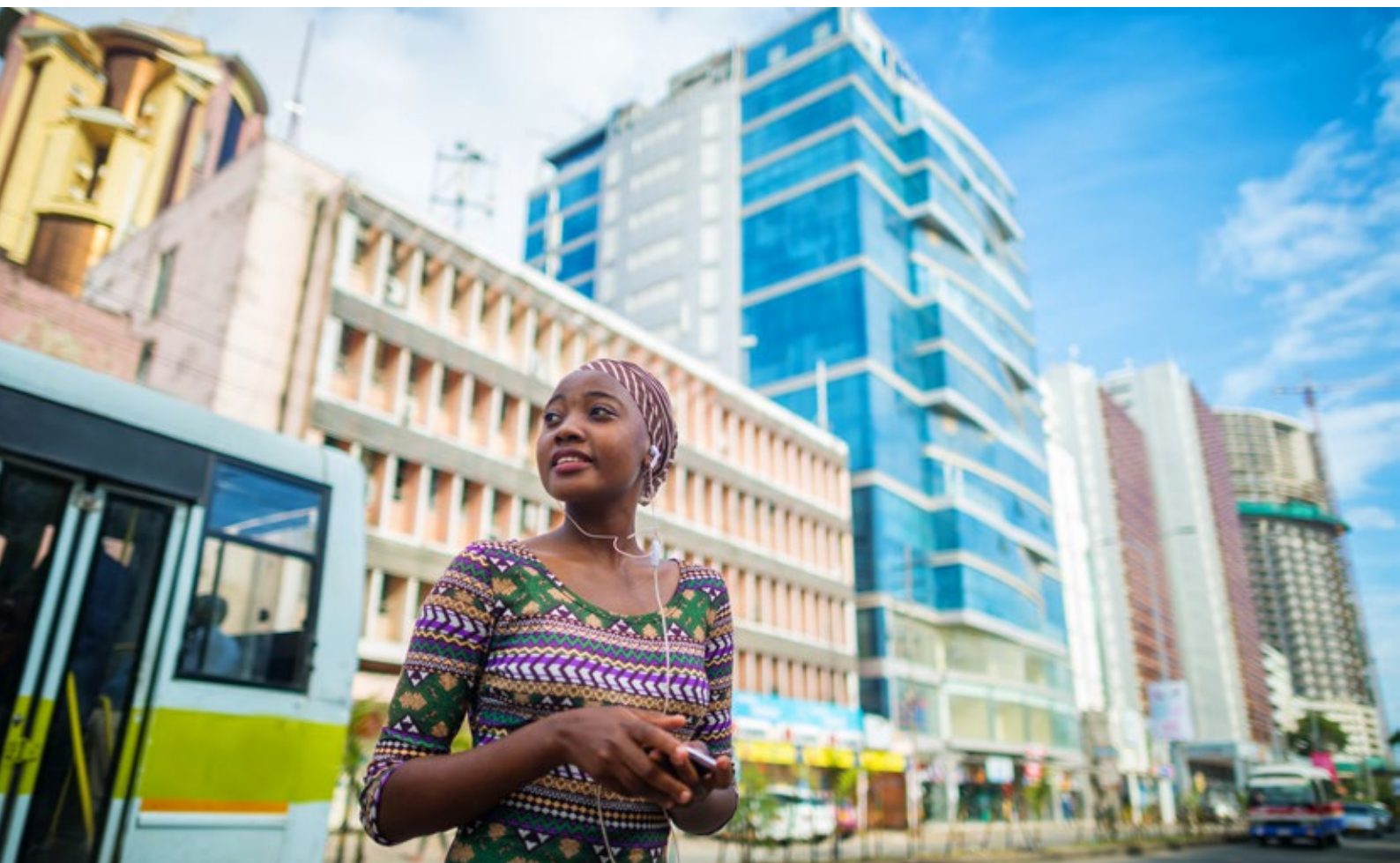
To understand the challenges facing e-commerce in Tanzania, the following sections look at several enabling factors: consumer capacity, business readiness, e-commerce policy landscape, logistics/delivery and payment modality.

Figure 17

Non-unique web visitors to B2C online market places in Tanzania (million)



Source: International Trade Centre⁸⁴



82 Buying and selling of goods or services over the internet, including completing the online purchase using digital payment options.

83 The Citizen, (2020), [Why e-commerce giants exit Tanzanian market](#)

84 See: [African Marketplace Explorer](#)

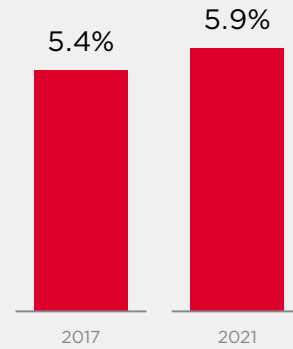
Consumer capacity

Digital inclusion is key to enabling the advancement of e-commerce, however as highlighted earlier in Section 2, many Tanzanians remain digitally excluded, hampering their ability to trade online. Only 5.9% of Tanzania's adult population are estimated to have made an online purchase during 2021, which is a marginal increase compared to 2017 (see Figure 18).

Consumers' level of education, average earnings and location are important factors influencing the likelihood of adopting e-commerce (Figure 19). Consumers with a higher level of education, living in urban areas and within the upper income band, tend to be more open to purchasing goods online. Social media is the main platform for consumer-to-consumer transactions; given the lack of well-developed regulation on social commerce, the risks for buyers and sellers are high and negative shopping experiences on social media are common. In a context where word-of-mouth and personal testimonials are a common means of business marketing, there is considerable mistrust in e-commerce overall.⁸⁵

Figure 18

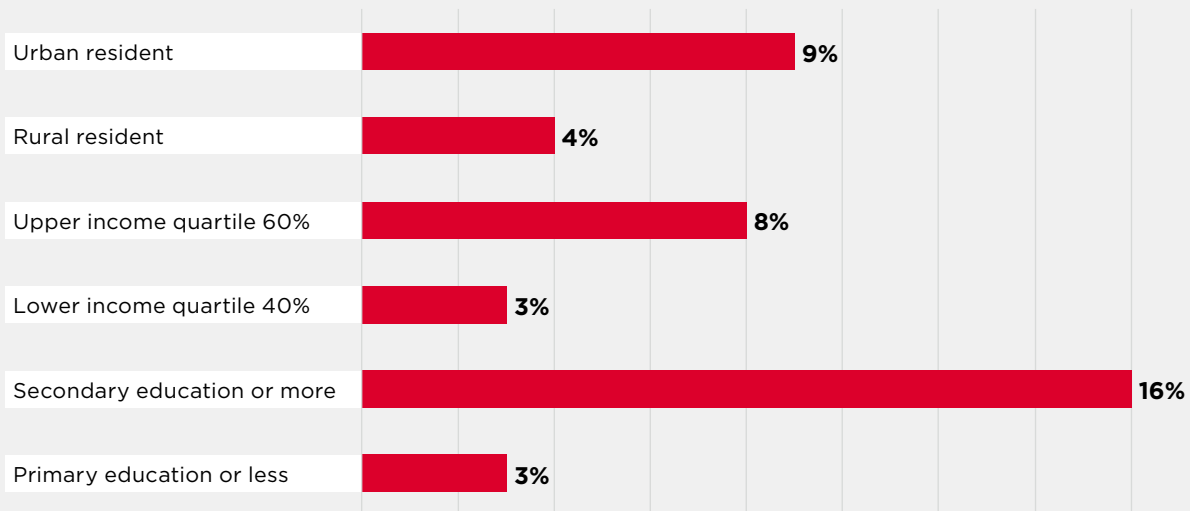
Proportion of the adult population who purchased goods or services online



Source: World Bank's Global Findex

Figure 19

Likelihood of e-commerce adoption by socioeconomic segment



Source: World Bank's Global Findex

85 DOT Tanzania (2021), *Digital Skills for Youth Employment and Entrepreneurship: Insights from the Tanzania Youth Digital Summit 2021*

Business readiness

New e-commerce platforms are slowly emerging in the country, although still very few in number (estimated to be less than 100)⁸⁶ and unable to serve rural and semi-urban locations due to poor infrastructure (e.g., road networks and inefficient postal systems). Examples of existing e-commerce platforms are shown in Figure 20.

In Tanzania, the bulk of retail commerce and trade happens within the semi formal or informal sector, representing the main challenge for expansion of the sector. Small enterprises lack the required digital, entrepreneurial and business management skills to transition to trading online.

Figure 20

Examples of e-commerce platforms in Tanzania



Shop Online Tanzania, KiKUU and Zudua are online shopping malls, stocking a wide range of products including electronics, clothes and household items, etc.



Piki is a food and beverages delivery platform that allows customers to order from restaurants or food vendors via a mobile application or online platform.



Paisha is a ride hailing app that also provides parcel, food and grocery delivery services.



Kupatana offers local free classifieds ads for bargain deals on cars, real estate, jobs and fashion, among others.



Inalipa and **duka.direct** are online and mobile platforms for trading in wholesale and retail items.



FUNDI is a mobile app that connects customers with trained and vetted repairs and maintenance technicians for both domestic and commercial needs.

Source: Websites/mobile applications

⁸⁶ Joiner, J. & Hinrichsen, S. (2021) [Scaling digital platforms through partnerships: The value of collaboration between mobile operators and digital platforms in emerging economies](#). GSMA

E-commerce policy landscape

Tanzania does not have an overarching e-commerce promotion policy or strategy to hasten expansion of the sector, although it has enacted several laws that are relevant to e-commerce. There is also no dedicated institution with a mandate to support the development of e-commerce.

The East African Community (EAC), of which Tanzania is a member country, has begun drafting an e-commerce strategy for the region. Other EAC member states such as Uganda⁸⁷ already have their draft domestic e-commerce strategies, which inform their contributions to the region's agenda. Tanzania is in a comparatively weak position in a regional context, as its role is currently limited to commenting on its peers' inputs in the region's agenda. The EAC e-commerce strategy may however spur Tanzania to push for a domestic e-commerce growth plan.

The national Electronic Transactions Act (2015) stipulates the duties of suppliers to online consumers, the time for execution of orders and order cancellation rights, among others. The Cyber Security Act (2015) has provisions to deter cyberbullying and reduce vulnerabilities online. Similarly, the Fair Competition Act (2003) aims to promote and protect effective competition in trade and commerce and to protect consumers from unfair and misleading market conduct. However, existing legislation has not been able to address the issues of distrust and concerns related to online fraud, as evidenced in a study by the College of Business Education, where over 70% of respondents indicated a lack of proper consumer protection as a deterrent to participating in e-commerce transactions.⁸⁸

The sheer nature of e-commerce transactions and the absence of physical interaction makes the issue of trust even more critical. Some of the major concerns raised by Tanzanians relate to issues such as the likelihood of deceptive information on goods and services sold, misleading advertising, inability to sufficiently verify the identity and authenticity of

traders, concern that goods purchased will never arrive at the destination, no guaranteed money back in case of item purchased not meeting expectations, tedious refund processes, online scams, handling of personal information, and the absence of reliable dispute resolution procedures.⁸⁹

Consumer protection legislation is essential to boost the usability of digital services by ensuring their safety and guaranteeing value for money. The country does not have a dedicated consumer protection law, although there are sector-based regulations that support consumer protection such as in telecommunications and financial services: The Electronic and Postal Communications (Consumer Protection) Regulations, 2018⁹⁰ and The Bank of Tanzania (Financial Consumer Protection) Regulations.⁹¹ There are also no strong consumer rights advocacy bodies in Tanzania.

Part VI of the Electronic Transactions Act includes provisions for online consumer protection, specifically duties of the supplier to online consumers, the time frame for execution of orders, cancellation rights and protection against unsolicited or bait advertising. Some of the mandatory information that sellers are required to provide include the businesses legal name, address and contact details, a clear description of the goods/services on offer, price of the item, information on payment mechanism, and an opportunity to review and modify selections made before confirming a transaction. Enforcement of these provisions however seems to be a major challenge. Existing provisions need to be more comprehensive, for instance to provide clarity on mechanisms for seeking redress or handling complaints and disputes. Consumer protection laws for e-commerce in Tanzania should encapsulate a broad range of issues beyond those currently captured in the Electronic Transaction Act. The table below highlights sample additional provisions required to boost consumers' confidence.

87 Ministry of ICT and National Guidance (2021), [Uganda National e-Commerce Strategy](#)

88 Ulimboka, L., et al (2020), [Examining the Consumer Protection and Comprehensiveness in e-Commerce in Tanzania](#) Business Educational Journal

89 Mng'ong'ose W.A., & Victor, M. (2018), [Factors Affecting E-Commerce Adoption in Tanzania](#) World Wide Journal of Multidisciplinary Research and Development

90 TCRA (2018), [The Electronic And Postal Communications \(Consumer Protection\) Regulations 2018](#)

91 Bank of Tanzania (2019), [The Bank of Tanzania Regulations](#)

Table 2: Suggested consumer protection provisions

Pre-purchase phase	Purchase phase	Post-purchase phase
<p>Consumers’ right to clear, accessible and transparent information about:</p> <ul style="list-style-type: none"> – The quality, quantity, potency, purity, standard and any hidden charges to enable them to make informed choices – Key functionalities and limitations of the item on sale – Safety and health care information – Terms of delivery or performance, including policies on warranties, refunds, exchange, etc – Right to general consumer education and information programmes provided by the government and relevant stakeholders to enable consumers understand their rights and responsibilities 	<p>Seller obligation to:</p> <ul style="list-style-type: none"> – Ensure clear and easy to understand contract terms that are fair – Ensure practices related to the collection and use of consumer data are lawful and that appropriate controls, security safeguards, transparency and consent mechanisms relating to the collection and use of their personal data are in place – Only process a transaction upon receipt of consumers’ express and informed consent – Have adequate safeguards against financial fraud and identity theft <p>Government or regulatory duty to:</p> <ul style="list-style-type: none"> – Promote policies that provide sufficient consumer privacy and data security mechanisms, national policies to ensure consumer privacy and data security – Implement regulations that ensure limitations on consumers’ liability for unauthorised online payment transactions, etc 	<p>Seller obligation to:</p> <ul style="list-style-type: none"> – Establish efficient internal complaints handling mechanisms at no additional cost to consumers – Provide redress to consumers for defective products, delivery delays or harm suffered as a direct consequence of sellers’ negligence <p>Consumers’ right to:</p> <ul style="list-style-type: none"> – Access information on available redress and dispute-resolving procedures – Obtain redress through timely, effective, impartial, transparent, inexpensive, and accessible mechanisms, such as administrative, judicial, and alternative online dispute resolution systems <p>Government’s duty to:</p> <ul style="list-style-type: none"> – Institute a consumer protection enforcement agency or authority that handles consumer complaints promptly and can facilitate redress for consumers

Source: Elaboration of OECD guidelines⁹² and UNCTAD notes⁹³

92 OECD (2016/2022) [Recommendation of the Council on Consumer Protection in E-commerce](#)

93 United Nations Conference on Trade and Development (2017), [Consumer protection in electronic commerce](#)



Logistics and delivery

E-commerce development has been hindered by poor logistics capacity, with low availability of reliable and efficient logistic supply companies. Delivery of e-commerce goods is currently mostly carried out by small domestic express delivery courier companies (about 135 licensed couriers operate in the country).⁹⁴ Tanzania Posts Corporation (TPC) is the designated national public postal operator and is undergoing reforms in a bid to modernise its operations for greater efficiency.⁹⁵

The country's transport infrastructure does not support multimodal transport networks. Inefficient home addressing systems and postal codes continue to be major challenges for last-mile delivery for service providers. Delivery processes are slow and costly for customers, due to manual interventions required (e.g. multiple phone calls to customers to ascertain location).

The FYDP III identifies the reduction of logistics costs through improved efficiency and reliability of transport infrastructure, logistics regulators, and service providers as a key area of intervention for trade and aims to establish an e-commerce platform by 2025. To this extent, the MICIT recently concluded a large-scale National Addressing and Postcode System (NAPS) project to register and digitise residential addresses to enable an effective postcode system for delivery logistics. Some of the planned reforms at TPC include increasing its capital base and expanding its branch network. TPC recently introduced a mobile application called Posta Kiganjani to enable customers to track delivery, and plans to construct warehouses for the storage and distribution of mail, courier, cargo, and agricultural and manufactured products. It is expected that these reforms will improve TPC's capacity to broaden its distribution channels to provide efficient services.

⁹⁴ Source: Draft Digital Economy Framework. Licensed couriers include: one national operator, five international service providers, one East African courier, six intercity, 23 intra-city, 35 domestic providers and 64 intercity transport companies.

⁹⁵ See: [Strategic Plan For The Period of 2021/22- 2025/26](#)

Payment modalities

Mobile money has emerged as the go-to solution for Tanzanians to access financial services (Figure 13). The Bank of Tanzania's regulations contribute to a conducive environment for mobile money, including interoperability between mobile money service providers. Interoperable transfers have grown steadily in Tanzania and represent 32% of all peer-to-peer mobile money transfers in the market.⁹⁶ Tanzania has a higher or similar ratio of mobile money account ownership to bank account ownership. Despite

the growth of mobile money payments, cash-on-delivery is still the most common form of payment for e-commerce transactions. Distrust and high costs of online transactions due to levies and taxes are key factors undermining the use of mobile money payments for e-commerce transactions.

Given this context, deliberate effort is required to create opportunities for e-commerce to flourish in Tanzania.



Case Study 6: Inalipa

Commencement date: April 2020

Target market: Mostly B2B

Location of operation: Dar es Salaam (and its peri-urban environs)

Products: Online store and mobile application for sale of groceries and household items.

Registered retailers: ~6,000

Monthly sales: Approximately \$150,000

Suppliers: Manufacturers

Major customers: Dukas or kiosks. Most demand is from peri-urban areas due to the distance from traditional wholesale markets.

Sales model: Retailers can either use a self-serve channel to make orders via an app or place orders through a network of sales representatives who visit potential and existing customers. About 40% of orders are made via the self-service channel, and 60% are initiated by sales representatives. Customer acquisition takes place through sales representatives,⁹⁷ who typically make the first few orders for a customer. Ultimately, Inalipa aims to transition customers from relying on sales representatives to making their orders directly on the self-serve channel on the app.

When an order is placed, it is first processed by Inalipa's centralised warehouse and the dispatch team before being scheduled for delivery. All steps are automated and customers are notified as soon as orders are dispatched so that they

can track them. Inalipa's policy is "no questions asked": any time customers raise a dispute on a transaction, the organisation always aims to refund or cancel the order with immediate effect.

Payment: Option for payment on delivery via cash, mobile money, bank transfers, etc. Cash-on-delivery is the primary payment option for new customers. After experiencing the service for the first time through human interaction, customers usually opt for mobile money.

Business constraints: (1) Struggle with sourcing goods from manufacturers in a timely manner to build inventory; (2) Competing with offline firms that can source products at lower prices; (3) Lack of basic underlying infrastructure in place to enable efficient e-commerce operations; Inalipa has to directly invest in all aspects of the business. Due to the impossibility of sourcing reliable third-party logistics companies, Inalipa operates its own warehouses and a fleet of vehicles and drivers.

Contributions to national development: Through its e-commerce platform, Inalipa provides economic opportunities for young people in a country where graduates struggle to find formal employment. It has recently rolled out an extensive network of sales representatives through a platform where anyone can register and receive training. Inalipa provides value to suppliers by allowing them to access an untapped market and get real-time visibility on consumer demand.

⁹⁶ Naji L., (2020). *Tracking the journey towards mobile money interoperability: Emerging evidence from six markets: Tanzania, Pakistan, Madagascar, Ghana, Jordan and Uganda* GSMA

⁹⁷ Sales representatives are essential in building trust with first-time retailers who value engaging with someone in case issues arise. The sales representatives earn a commission.



Case Study 7: Piki

Piki is an on-demand services platform and mobile application with a focus on food delivery, connecting restaurants and consumers. It was launched by the former Country Manager of Jumia.

Commencement date: 2020, just before the peak of the COVID-19 pandemic.

Target market: B2C and B2B

Location of operation: Dar es Salaam, Arusha, Dodoma (urban areas and proximity)

Monthly sales volume: ~ 30,000 orders

Annual transaction value: ~\$4.5 million (Piki's revenue is a small percentage of the transaction value)

Suppliers: Restaurants, grocery stores, farms, and some non-food vendors **Logistics strength:** Fleet of 125+ drivers. ~30% of the fleet is electric-powered.

Sales model: Piki started as a simple marketplace for restaurants and other food vendors. Once an order is placed, Piki's drivers and delivery partners deliver it directly to the customer. Piki typically does not have a large asset base as part of its operational model, however the company now has a small warehouse for a limited number of products, such as dry groceries and beverages.

Growth plan: Since launch, demand has been steady and customer feedback positive. The company aims to tighten its operations for greater efficiency and to improve logistics. It wants to build a network of warehouses and gradually transition to a full-scale logistics service provider in order to support local e-commerce merchants.

Payment model: Option for payment on delivery – cash and mobile money payments available. High levels of taxation and platform fees have made digital payments less attractive to customers.

Business constraints: (1) Inability to leverage existing data available to the company to inform business decisions. The company requires more human resources and more skilled technical staff to improve its operations, especially in planning and strategy; (2) Extensive documentation and time required for seeking external funding or investment has been a deterrent to expanding the business.

Contributions to development: Local economic development for food vendors and economic opportunities for employment. Directly provides sustainable employment for 35 office staff, 125+ drivers, and increases the revenue of 400+ vendors.

Reflection

- Advisory on activities to strengthen consumer protection and confidence. This could take the form of assisting to develop an action plan.
- Technical support in drafting and implementing national e-commerce strategy, relevant legislation, and regulation of the sector to promote e-commerce growth.
- Support in reviewing TPC's processes to identify inefficiencies, and determine areas for improving logistics capacity. In addition, provide guidance on how to achieve an enabling environment for private logistics operators to thrive.
- Consumer education and sensitisation.
- Capacity building for informal traders to switch to e-commerce.

06

Digital policy agenda and regulatory framework



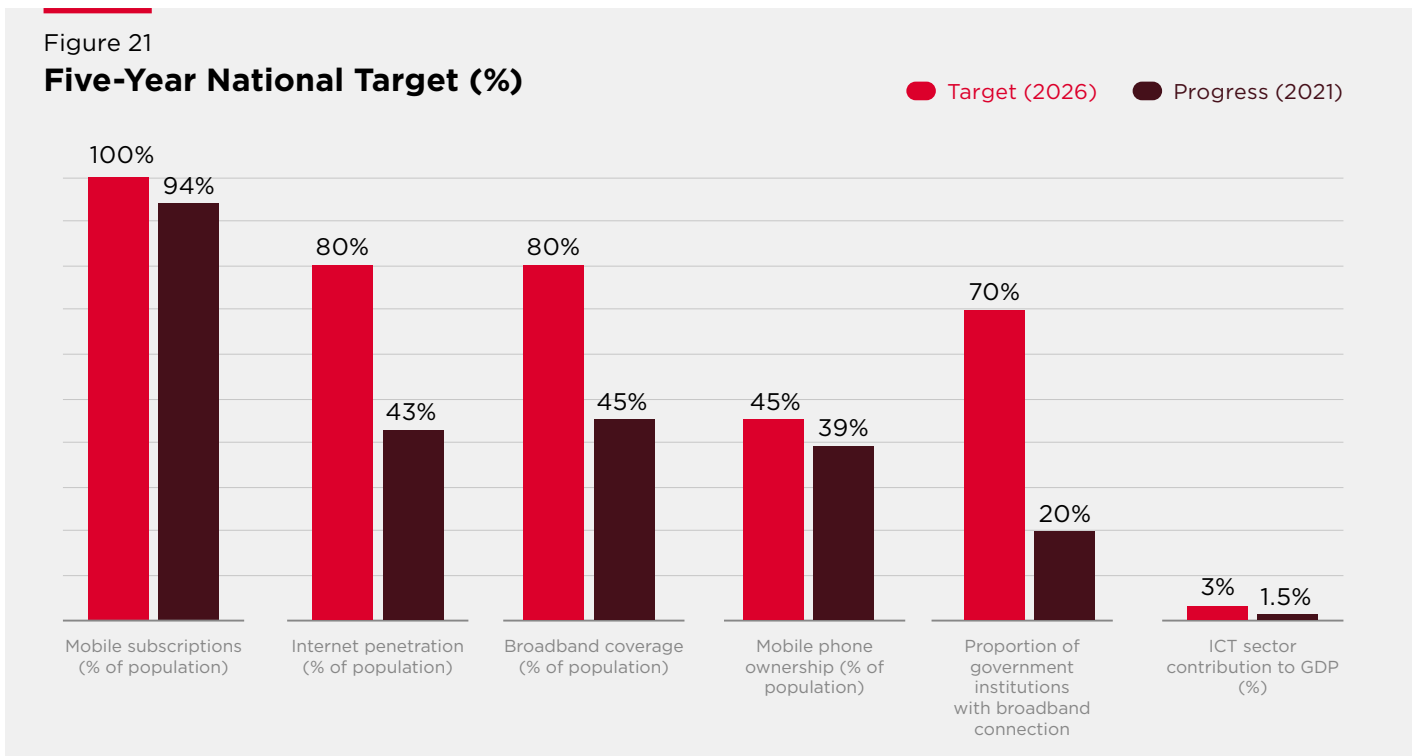
6.1 Guiding policies and key national targets

Tanzania is yet to implement a comprehensive nationwide framework or blueprint to guide its digitalisation drive, although there are ongoing efforts to draft and finalise a national digital transformation guideline. In the meantime, the digital policy landscape has been steered by the Tanzania Development Vision 2025, which is influenced by the commitments made in the ruling party’s election manifesto. Vision 2025 aims to transform the country into a semi-industrialised economy, with digital and ICT identified as main inputs for socio-economic development. In the last two decades, Vision 2025 has been supported by FYDP I, II and III. The government uses these development plans to outline its investments and policy priorities to transform the structure of the economy.

The digitalisation priority for FYDP I, which ran from 2011 to 2015, was to develop core ICT infrastructure. During this period, the Tanzanian Government

launched the NICTBB and expanded undersea cable connectivity. Under FYDP II, some additional infrastructure was built,⁹⁸ the national ICT policy was revised, separation of duties was established for the ministry in charge of ICT, and a new cybersecurity strategy was introduced, among other initiatives.

The current FYDP III (2021/2022 - 2025/2026) places digitalisation at the centre of Tanzania’s future development plans to transition the country into a regional ICT hub. As part of this goal, the FYDP III aims to expand the deployment of innovations and establish an enabling environment for investments in digital and frontier technologies that can help accelerate the development of productive industrial sectors. It also aims to build digital skills and entrepreneurship. Furthermore, FYDP III has ambitious plans to create jobs for the digital economy focusing on the digitalisation of the services sector.



Source: FYDP III⁹⁹

⁹⁸ Further expansion of the NICTBB was commissioned.

⁹⁹ For the baseline data on broadband coverage, the FYDP figures differ from GSMAi figures (75%).

One of the major agendas is to extend broadband coverage to all. To achieve this, the NICTBB Strategy 2021 notes that there is a plan to upgrade 2G communication infrastructure to 3G or higher technologies and extend the nationwide fibre infrastructure from 27,912km to 86,000km. While there are no specific targets on the number of jobs to be created through digitalisation, the FYDP III has an overall target to double the digital economy's contribution to the GDP.

In Zanzibar, the government has also embraced the country's digitalisation agenda. Major initiatives announced include the digitalisation of port operations to boost the country's plans for expanding regional trade, and the establishment of Silicon Zanzibar, an initiative that aims to bring a greater number of tech companies to the island.^{100, 101}

Figure 22 highlights other supporting policies/regulations in place related to the government's digitalisation agenda. While these policies are important, they need to be reviewed to reflect a constantly evolving environment and meet new regulatory demands in the areas of data protection, privacy and digital rights. They should also be more responsive to the various needs of all segments of society, including those most likely to be left behind. For example, the National ICT Policy only superficially covers digital gender inclusion and does not consider people with disabilities.

As a positive sign of the government's commitment to achieving digital uptake, several policies and strategies are either undergoing review or are being drafted to see how they can facilitate faster success of the nation's digitalisation agenda.

Figure 22

Examples of supporting policies and regulations

 Existing policies/regulations	 Policies/regulations under review or being drafted	 Policies not in place or requiring updates
<ul style="list-style-type: none"> – National ICT Policy of 2016 – The e-Government Act 2019 – The Cybercrimes Act 2015 – The Electronic Transactions Act 2015 – The Electronic and Postal Communications (Online Content) (Amendment) Regulation 2022 – Digital Health Strategy 2019-2024 	<ul style="list-style-type: none"> – National ICT Policy (review) – Digital Economy Framework – Digital Transformation Guideline – Personal Data Protection Act – Start-up Policy – National Innovation Framework 	<ul style="list-style-type: none"> – Pro-competition regulation for digital markets e.g. e-commerce framework – Digital literacy and smart phone strategy – AI strategy – Regulatory Sandbox Framework – Sector-specific digital strategies

¹⁰⁰ The Citizen (2022), [Zanzibar port digitisation](#)
¹⁰¹ See: [Silicon Zanzibar, a public-private initiative](#)

Reflection

- Tanzania currently does not have a clearly defined strategy or integrated digital framework to guide digital transformation initiatives. MICIT is drafting a framework which is near completion. It is important to establish an effective implementation plan.
- There is a need for data privacy and broader digital governance frameworks to engender trust. MICIT and TCRA are leading on finalising a draft privacy bill, which is now awaiting executive assent. An independent and capable agency will be set up to coordinate and enforce the act when passed.
- Technical guidance may be required to support implementation of these upcoming policies.

6.2 Policy efficiency and impact

The pursuit of digitalisation is a means to achieving national development. Given this, for policy implementation to be effective, it is useful to recognise that digitalisation interventions cannot be deployed in isolation of wider national development programmes. Digital policies need to guide digital adoption across broader development initiatives. However, existing policies have not clearly

communicated how the country plans to use digital technologies as a catalyst to improve livelihoods and promote a thriving economy. For example, Tanzania could benefit from supporting digital strategies for the individual priority sectors highlighted in the FYDP III.¹⁰² It is also important that the government establishes enforcement mechanisms.

Investment attractiveness

There are examples of counterproductive policies and regulations that discourage foreign direct investment in the country, with significant impact on the digital and tech sector. Venture capitalists do not consider the business climate in Tanzania to be conducive to investment. One of the main challenges is the uncertainty around capital repatriation. The stock market is not well developed and capital gains taxes in the country are as high as 20% on sale of shares, compared with 10% in Kenya and 7% in Rwanda. The country has a somewhat tainted image and reputation as being anti-private sector and

anti-foreign investment, although this is something the current regime is working to reverse with new investment policy/legislation. Such notions affect investment in the digital sector and constrain start-ups from growing and reaching the market. Despite the increased flow and interest in Africa's tech space, the investment into Tanzania remains minimal—approximately \$46 million in 2021, less than a tenth of the funds raised by Kenyan tech firms.¹⁰³ Even so, there is cautious optimism in the investment community as the government is expected to encourage investment.

Taxation

Tanzania has an unconducive tax regime on digital and mobile services, resulting in higher transaction costs and constituting an adoption barrier.¹⁰⁴ There are excessive sector-specific taxes imposed on the

mobile industry in Tanzania that are much higher than in other countries in the region (Figures 23 and 24). The comparatively high tax burden is mainly driven by high excise duties on mobile services.

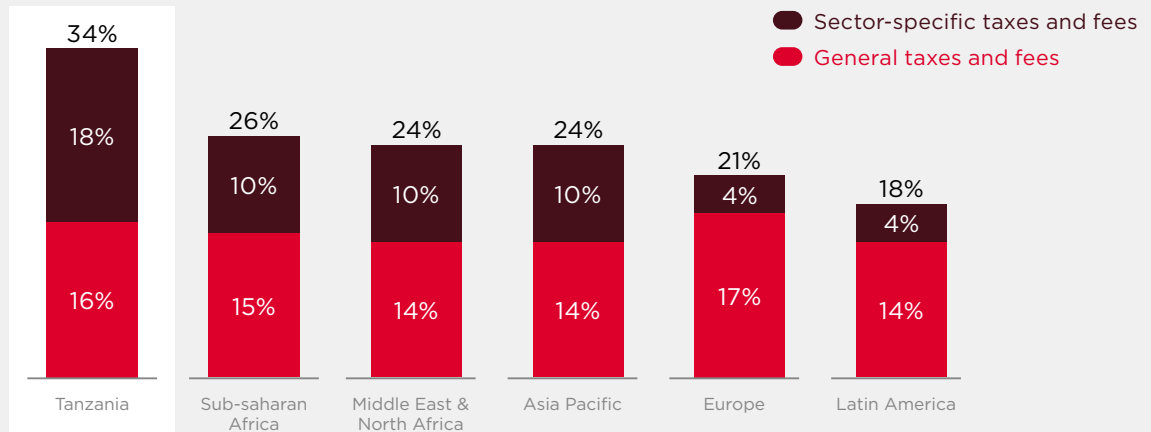
¹⁰² Some of the sectors to benefit from strategic interventions to deepen industrialisation and services include: agriculture, manufacturing, mining, construction, tourism, financial services and blue economy, among others.

¹⁰³ Partech (2021) [2021 Africa Tech Venture Capital Report](#)

¹⁰⁴ Refer to Annex 3 for summary of different taxes and regulatory fees imposed on mobile consumers and MNOs in Tanzania.

Figure 23

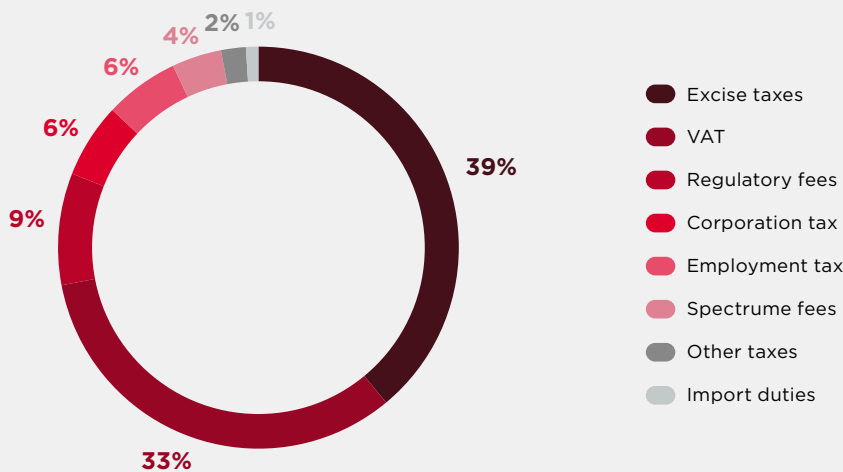
General taxes and fees vs mobile sector-specific taxes and fees (as a percentage of mobile sector revenue)¹⁰⁵



Source: GSMA (2021)

Figure 24

Tax categories as a percentage of overall tax revenues from the mobile sector



Source: GSMA

Exorbitant consumer and operator taxes have had a negative impact on affordability of services, digital inclusion, financial inclusion and overall usage of mobile and digital services. These can have a ripple effect and stall the growth of the sector. Between June and September 2021, the total volume of peer-to-peer mobile money transactions dipped by 38% (a fall from 30 to 18 million transactions per month).¹⁰⁶

Following push-back from the public, and advocacy pursued by GSMA and MNOs (based on tangible evidence of the economic impact), Tanzanian authorities responded by reducing and subsequently

reversing the levy on mobile money transactions. The reversal took effect on 1 October 2022.¹⁰⁷ The proactive response from the government is a positive sign of willingness to act on feedback from the industry. However, the reinforcement of VAT on mobile devices (initially removed during COVID-19) is a step in the opposite direction, which the government has justified due to a lack of evidence of how VAT reductions are passed to consumers and businesses (e.g. cheaper mobile devices). A comprehensive review of taxes on digital transactions and corresponding outcomes is required.

¹⁰⁵ GSMA (2021), [Tanzania: Driving social and economic value through mobile-sector tax reform](#)

¹⁰⁶ GSMA (2022), [Tanzania Mobile Money Levy Impact Analysis](#)

¹⁰⁷ Source: Financial Provisions Amendment Act, 2022

Online content regulation

The objective of the Electronic and Postal Communications (Online Content) Regulations first released in 2018 was to address online misinformation. The regulations imposed a new annual license fee of TZS 1 million and an application fee of TZS 100,000 payable by online content and service providers, including bloggers and providers of education and religious content, among others.¹⁰⁸ Internet cafés were also liable to pay similar fees. The additional cost burden of these fees resulted in a steep decline in available local content, as many providers were unable to afford licenses.¹⁰⁹ An extra compliance burden was placed on internet café operators, who were required to install surveillance cameras, keep a comprehensive register of customers, and assign public IP addresses to all devices used.¹¹⁰

Given that online forums and spaces had become a significant part of activism in the country at the time, the public viewed the regulation as an attempt to undermine freedom of speech online. The regulation was subsequently revised in 2020 and 2022^{111, 112} as a result of comments received by the government, after a public call for proposals to amend the regulation was made. While the fees related to online media services have now been reduced by half, and compliance obligations on internet cafes removed, the regulations still serve as a barrier to the production and consumption of local content online.

Cloud hosting restrictions

Cloud hosting is an enabling technology for the development of the digital economy. However, the Finance Act 2021 introduced a mandatory requirement for taxpayers who maintain documents in electronic form to only host such information in a primary data server within the country. The requirement for a local physical server runs against the move to cloud-based storage systems that are

more secure, reliable, convenient, cheaper, and energy efficient. The outcome of this provision could hamper both local and regional business operations, and reduce the competitiveness of local businesses, due to increased compliance costs resulting from the need to invest in hardware, supporting infrastructure, and information technology personnel.

Reflection

- Regulatory reforms are needed to attract foreign investment. Priorities include reforming the investment entry regime, promoting best practices in the effectiveness of investment incentives, and strengthening investor confidence to aid retention and expansion of investment.
- There is a need to review taxes and levies imposed on mobile and digital services/products.
- Strategic thinking is required on how to embed digitalisation in broader development structures and interventions to avoid introducing policies that reverse progress made.

¹⁰⁸ TCRA (2018) [The Electronic and Postal Communications \(Online Content\) Regulations 2018](#)

¹⁰⁹ Global Voices (2021) [Post-Magufuli, will Tanzania review its repressive online content regulations?](#)

¹¹⁰ FB Attorneys (2022) [Online Content Regulations Overhauled](#)

¹¹¹ TCRA (2018) [The Electronic and Postal Communications \(Online Content\) Regulations 2018](#)

¹¹² TCRA (2022) [The Electronic and Postal Communications Act, Regulations](#)

Tanzania has established multiple institutions spread across different ministries to support digital development in the country. With various agencies having a stake in Tanzania's digitalisation efforts, the power to impede or facilitate digitalisation rests in the ability of these institutions to work together.

6.3 Government institutions supporting digitalisation

Tanzania has established multiple institutions spread across different ministries to support digital development in the country. With various agencies having a stake in Tanzania's digitalisation efforts, the power to impede or facilitate digitalisation rests in the ability of these institutions to work together. However, these institutions differ in their formation and mandate, and sometimes struggle to work together and align objectives due to legacy issues. For some, digital development is only a small part of their mission whereas for others, it is a major focus.

To this end, MICIT was established in 2021 and mandated to lead digital transformation in Tanzania. The Ministry is responsible for formulating the National ICT Policy and is leading the drafting of a 10-year digital economy framework. MICIT is supported by multiple institutions within its Ministry, assigned specific oversight and coordination roles across the ICT sector. These institutions include:

- TCRA: Responsible for regulating and setting standards for electronic and postal communications;
- Information and Communication Technologies Commission (ICTC): Tasked with fostering investment and development of the ICT industry;
- UCSAF: Tasked to promote inclusive access to telecommunications services;
- TTCL: Manages and operates the NICTBB on behalf of the MICIT; and
- TPC: National postal operator's role is to provide mail, parcel, and courier logistics and promote e-commerce services.¹¹³

These institutions have evolved out of previous ministries such as the Ministry of Communication and Information Technology and the Ministry of Information, Culture, Arts and Sports. While restructuring was deemed necessary due to political reasons and for more concerted digitalisation efforts, it has brought some challenges in finding the most effective ways to collaborate and work towards shared objectives.

While the MICIT takes ownership of agenda-setting and reform in the digital space, it incorporates input from various public institutions. An example is the draft Digital Economy Framework (2022 – 2032), which was the outcome of a high-level policy meeting of senior government officials, convened by the TCRA, to map out a plan for the country's digital economy growth.¹¹⁴ The draft roadmap for Tanzania's digital economy journey will go through reviews and consultations, including a review by a joint committee before cabinet approval is obtained.

Other government institutions outside of the MICIT that are involved in actualising the country's digitalisation agenda include:

- e-GA: Administers and operationalises Tanzania's e-government strategy;
- Commission of Science and Technology (COSTECH): Promotes science, technology and innovation, particularly through incubation of tech start-ups;
- Bank of Tanzania (BOT): Regulates the national payment system; and
- Tanzania Revenue Authority (TRA): Oversees revenue collection.

While e-GA collaborates with the MICIT, the oversight role by the Office of the President - Public Service Management and Good Governance (PO-PSMGG) rather than the MICIT might be a deterrent in proper funding and strategising. Top leadership of e-GA may therefore not have a holistic picture in promoting e-government services as part of a wider digital transformation goal.

¹¹³ Refer to Annex 4 for further details on institutional mandate and activities.

¹¹⁴ The four day policy brainstorming session took place from 8 - 11 March 2022 in Zanzibar. Participants included the Secretary to the State Government, Ministers, Permanent Secretaries, Regulators, Academics, Controller and Auditor General, Treasury Registrar, Governor of Bank of Tanzania, and Heads of public institutions.

Reflection

- Tanzania relies on several key institutions to support its digitalisation agenda, which constitutes a relative strength. However, these institutions need to be fully equipped with the resources, skills and capacity to make their contributions impactful.
- There is a potential risk that the existence of several institutions may cause overlaps, contrasting agendas, and lack of clarity in responsibilities.

6.4 Policy influences and technology governance approach in Tanzania

The broader political economy of governance in Tanzania has significant effects on technology governance. As such, it is important to understand the relationship between the Tanzanian Government, the private sector and citizens. A clear understanding of the dynamics of these relationships is especially important now, following the death of the immediate past president and subsequent rise to presidency by the former Vice President. These are two leaders from the same party who served together, but with seemingly different approaches to development.

Policies in Tanzania are typically designed to affect the overall development vision and direction set out by the ruling party, the longest-serving in Africa, which broadly follows a socialist ideology. While Tanzania became a multi-party democracy in 1994, the distinction between the government and the ruling party is still considered to be somewhat blurred.

Tanzania's political settlement has often shifted between broad-dispersed and narrow-concentrated typologies.¹¹⁵ Currently, the political settlement seems to be shifting from a narrow-based typology (characterised by power imbalance, where political leaders are comparatively stronger than their followers and opponents, and in such context, the regulatory and institutional frameworks struggle to support digitalisation). Considering that the current focus appears to be on social development, rebuilding Tanzania's relationships with the international community, and advocating for the principles of a democratic and open society and digital inclusion, Tanzania's political settlement

could possibly be moving back to a broad-dispersed typology. This would imply fewer power imbalances that allow decision-making to involve some level of bargaining. It should also ensure greater commitment by Tanzania's ruling elite to deliver social development.

Despite this optimism, existing government structures are still relatively unchanged, which could pose a challenge for real change.¹¹⁶ Also, there is no strong political opposition in Tanzania to keep the government in check and a possibility that a complete shift toward a broad-dispersed typology may take longer.

Another key determinant of policy interventions is the availability of funding with favourable terms and conditions, and the prospect of the intervention being able to generate revenue for the government. Donor funding to directly support the national budget has dipped significantly in the last decade. By 2015/2016, aid was used to finance approximately 7% of the budget as compared to 44% in 2004/2005, partly due to the reported breakdown of the relationship between the government and foreign countries.¹¹⁷ This contributed to a significant push for domestic revenue collection that increased digital taxes. Rebuilding relationships with traditional development partners has therefore become a core focus of the current administration to support access to more development funding.¹¹⁸ The current administration is also taking a similar route in terms of financing development initiatives by combining both concessional loans and grants, and pushing for revenue collections.

¹¹⁵ ODI (2018), [Thinking and working with political settlements: the case of Tanzania](#)

¹¹⁶ CSIS (2022), [One Year of Tanzanian President Hassan: What's Changed?](#)

¹¹⁷ NUPI (2018) [Tanzania: A Political Economy Analysis](#)

¹¹⁸ Mending donor relations might influence a gradual shift to a more open and collaborative technology governance approach. This has seen the prioritisation of policy areas that may otherwise not have been prioritised e.g. the Personal Data Protection Bill. It has also given room for negotiations on digital taxation.

Digital technology initiatives that can boost government revenue generation tend to be more attractive to the Tanzanian government. For instance, the development and success of the GePG in revenue collections played an important role in increasing the government's interest in advancing the use of e-government platforms for service delivery.

The immediate past and current administration have focused their digitalisation efforts on the supply side—particularly in making digital infrastructure available—with the assumption that once supply is fixed, demand will come. However, as demonstrated by the significant usage gap (see Section 2.2), a major risk to digital inclusion in Tanzania is low demand for digital services. Focusing on increasing demand could guarantee that digital interventions move beyond setting up digital infrastructure to ensuring that the public has the right tools to leverage these digital assets.

Digital policymaking in Tanzania appears to follow a top-down approach, with little grassroots input. To build and run effective digital systems, it is useful for the people closest to the work or directly affected by the output to be able to influence decisions. There are instances of involvement of key stakeholders, such as associations and civil society groups, but these organisations are not well equipped with the capacity to engage effectively.

Tanzania's strategy in setting its policy agenda on digitalisation has been to protect its sovereignty and core domestic values and goals from domestic and international actors empowered by the internet. This has influenced its priorities of giving regulators broad discretionary powers and restricting power

centres outside of government structures. As such, there is a risk that digital policies and interventions may be prioritised to support the accumulation of social and political control over driving innovation and competition, which could limit opportunities for structural change through digitalisation.

The country has often shown little interest in participating in regional and international fora, and it has been slow to adopt international digitalisation standards and processes. For instance, until March 2022, Tanzania had not signed the African Union Convention on Cyber Security and Personal Data Protection introduced in 2014. Although some previous administrations strived for more international collaboration, some of such collaborations were overturned by subsequent administrations. For example, Tanzania joined the Open Government Partnership (OGP) in 2011 but withdrew from it in 2017.

The government is however becoming more strategic in ensuring Tanzania's participation in international fora and meeting global standards, particularly in a bid to improve its international reputation. In the past year, Tanzania has not only sought membership and signed up to regional digital bodies such as the African Telecommunications Union (ATU) and the East Africa One Network Area Initiative,¹¹⁹ it has also won leadership positions in international bodies like the International Telecommunication Union (ITU) Council.¹²⁰ Advocating for the foundational principles of a democratic and open society and for the principles of digital inclusion does not however exclude that the government may work at the same time to gain social and political control.

Reflection

- Tanzania's political settlement appears to be transitioning, with less power imbalance and more room for collective bargaining, which would make it easier for development partners to provide support on the policy framework.
- The government's digitalisation initiatives have focused on the supply side of digitalisation and neglected the demand side, which poses a great risk to digital inclusion.
- The ruling party's development agenda and available funding are major factors that influence policy intervention.
- Tanzania's growing interest in participating in regional and global networks provides an opportunity for knowledge sharing (which can be beneficial in deploying more effective digitalisation policy interventions domestically) and contributing to standard setting at the international level.

¹¹⁹ See: [Tanzania joins the East African Community's One Network Area to facilitate Trade](#)

¹²⁰ See: [Tanzania Voted Member of ITU Council](#)

07

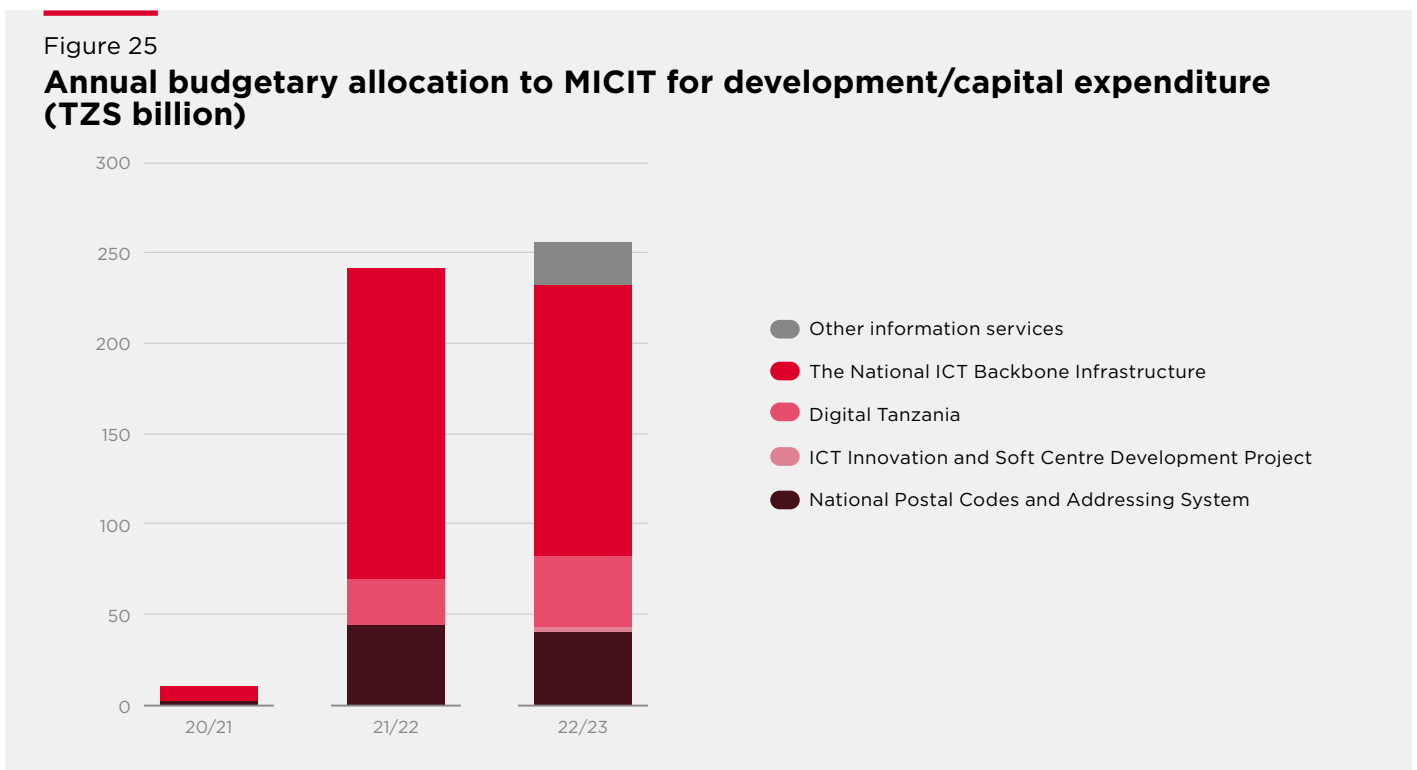
Interventions and collaborations to close digitalisation gaps



7.1 Major interventions and collaborations with external actors

In the past two years, Tanzania has made significant investment in developing its digital infrastructure with increased funding through the annual budgetary allocation (Figure 25). A major reason for the increase is the change in its approach to funding the NICTBB project. While phases I to III of the NICTBB project

were funded by external loans,¹²¹ the MICIT has opted to use mostly government revenue and partnerships with a consortium of MNOs to complete subsequent expansion of the NICTBB. Part of the reason for this change in approach could be to ensure greater control over how the infrastructure is built.



Source: Ministry of Finance and Planning Budget Books¹²²

MICIT’s budget remains lean, and as such, there is still dependency on collaborations and support from donors and multilateral finance institutions to fund development projects on digitalisation. Tanzania has stated that it is eager and willing to partner with organisations interested in developing the digital ecosystem.¹²³ The Tanzanian government drives the country’s digitalisation agenda and areas of

focus, and tends to adopt a nationalistic approach to ownership of digital assets. Multilateral donor organisations and tech leaders in the private sector also have some degree of influence on the nature of digitalisation interventions under their programmes and investment projects.

¹²¹ AidData (2021), [AidData’s Global Chinese Development Finance Dataset, Version 2.0](#)

¹²² See: [Ministry of Finance and Planning: Budget Guidelines](#)

¹²³ Ministry of Information, Communication and Information Technology (2022), [Projects for Investment 2022](#)

The table below highlights some ongoing, planned and past digitalisation interventions in the country:¹²⁴

Table 3: Sample collaborative intervention programmes to support the government’s digitalisation agenda

Donor/Investor	Project name	Project objective	Funding	Implementers
World Bank ^{125,126}	Digital Tanzania Project (DTP) 2021 - 2026	Digital Ecosystem: Establish policy and regulatory environment to enable and accelerate digitalisation Digital Connectivity: Close the gaps in internet penetration by improving rural broadband infrastructure and digital government services Digital Government: Accelerate digital innovations, job creation in the digital economy and delivery of digital services to citizens	\$150 million (loan)	MICIT and PO-PSMGG, UCSAF, etc.
	Regional Communications Infrastructure Program (RCIP - TZ) 2009 to 2017	Support the government’s efforts to lower retail prices of digital services and extend the geographic reach of broadband networks including villages to help narrow the digital divide.	\$100 million (loan)	MICIT and PO-PSMGG
South Korea ^{127,128}	National identification - Phase II (2022 to -)	A loan from the Korea Economic Cooperation and Development Fund for the National Identification System Expansion Project	TSZ 163.1 billion - \$70 million (loan)	NIDA, MoFP
	National identification - Phase I (2013 to -)	South Korea’s Export-Import Bank provided a loan for the National ID System Data Centre project	\$54.3 million (loan)	NIDA, MoFP
		Cybersecurity college and ICT University to be funded by financing from Korea	Unspecified	MICIT, ICTC

¹²⁴ This list is in not exhaustive and does not include projects that have digital expansion as just a portion of a wider development intervention.

¹²⁵ See: Digital Tanzania Project

¹²⁶ See: [Regional Communications Infrastructure Program - Phase 3](#)

¹²⁷ Ministry of Finance and Planning (2022), [Korea Gives Tanzania SH. 2 Trillion](#)

¹²⁸ TXF (2013), [Tanzania gets Kexim loan for e-government project](#)

Donor/Investor	Project name	Project objective	Funding	Implementers
EU ¹²⁹	Digital4Tanzania (D4T) 2021/2022 – 2024/2025	Digital Government: Improve the use of e-government and e-services Inclusive Connectivity: Support connectivity investments and address the gender and geographic divide Digital Trade Support: Develop the fintech sector and innovation ecosystems in the country	€35 million ~ \$34 million (grant) ¹³⁰	MICIT, EU Member States and UNCDF
UAE ¹³¹	Mobile phone assembly plant (2022 to -)	Signed multiple MoUs to invest in capacity building and support to set up an assembly of mobile phones and devices in Tanzania and develop digital systems and 5G technologies	Unspecified	Ministry for Investment, Industry and Trade
Fumba Town, Wasoko	Silicon Zanzibar (2022 to -)	A public-private initiative to attract and relocate tech companies from across Africa to the island. The Zanzibar government will offer work visas and exemptions from corporate tax; CPS will provide the grounds for the innovation hub that Wasoko plans to build and run	Unspecified	Ministry of Investment and Economic Development
China ¹³²	NICTBB (2009 – 2016)	Funding from China Exim Bank to build Tanzania’s national fibre optic backbone. Implemented by Chinese International Telecommunications Construction Corporation (CITCC), a subsidiary of the state-owned China Telecom, in collaboration with Huawei	\$264+ million (loan)	MICIT, TTCL, CITCC, Huawei

¹²⁹ EU (2021), Digital4Tanzania (D4T) e-Governance Support Programme.

¹³⁰ €28 million has been allocated for objectives 1 and 2, €4.5million for the third goal, and the balance applies across all three goals.

¹³¹ Africa Press (2022), [How Tanzania reaped big at Dubai Expo 2020](#).

¹³² Agbebi, M. et al (2021), [China-powered ICT Infrastructure: Lessons from Tanzania and Cambodia](#)

Donor/Investor	Project name	Project objective	Funding	Implementers
Finland	TANZICT 2011 - 2016 ¹³³	Revised ICT policy introduced in 2016. Initiated pre-incubation training program, which transitioned into the major Buni Innovation Hub. Provided the Ministry of CST with capacity building. Innovation funding for prototypes	€5.8million - \$4.4 million (grant)	COSTECH, Ministry of Education
Huawei ^{134,135,136,137,138}	Construction of landline and mobile ICT networks. (2015 to -)	A public-private-partnership to build TTCL's infrastructure required for quality data services, and extend 4G and 3G coverage to rural villages	\$182 million (PPP)	Huawei/TTCL
	National Internet Data Center (2015 to 2016)	Built a tier 3 data centre that offers multiple redundancy schemes to support high-speed broadband connectivity by optic fibre and would not rely on electric power but rather on solar power and batteries	\$93.7 million	Huawei/ Minister of Communications, Science, and Technology

The DTP is the most notable ongoing digital intervention programme in the country. For more recent MoUs, it appears that the partnerships formed are yet to materialise as these are still in the early stages.

¹³³ Finland Abroad (2016), [Innovation programme turns young Tanzanians into entrepreneurs](#)

¹³⁴ TanzaniaInvest (2015), [Tanzanian And Chinese Telecom Companies Sign USD 182 Million Deal To Build Landline And Mobile Networks](#)

¹³⁵ TanzaniaInvest (2015), [Huawei To Bring Optic Fibre High Speed Broadband Internet To Tanzania](#)

¹³⁶ China Daily (2015), [China's Huawei becomes ICT advisor to Tanzanian govt](#)

¹³⁷ Africa Press (2021), [Govt welcomes Huawei's ICT training](#)

¹³⁸ The Citizen (2022), [TTCL, Huawei sign agreement to improve communication technology](#)

7.2 Alignment of interventions with national objectives

7.2.1 World Bank funded projects

The World Bank has been an important partner for Tanzania in achieving national digitalisation goals. Through International Development Assistance (IDA) concessional loans, targeted at funds for poor countries with little or no interest charges, the country has been able to invest in digital infrastructure. The World Bank also provides programme management assistance for the implementation of such projects.

The concluded Regional Communications Infrastructure Program (RCIP-TZ) and ongoing Digital Tanzania Project (DTP) are in line with the World Bank's broader Digital Economy for Africa (DE4A) initiative¹³⁹ which supports the implementation of the African Union's Digital Transformation Strategy for Africa, 2020 to 2030¹⁴⁰ for an inclusive, integrated and stronger digital society and economy that translates to improved quality of life for Africa's citizens. The DTP considers IDA commitments will close the digital infrastructure gap and support women's increased access to digital services.

Both the RCIP-TZ and DTP focus on expanding access to digital infrastructure and connectivity for people and the government. Implementation has mostly been government-led. A review of specific activities under the ongoing DTP shows that the goals align with broad national digitalisation objectives of achieving universal connectivity and promoting e-government services. To this end, more than two-thirds of DTP funding is targeted at enhancing

broadband connectivity to at least 200 government institutions including schools and hospitals, acquiring cloud infrastructure to strengthen the national data centre, extending data-enabled network coverage to an estimated three million people living in underserved rural areas of the country, and setting up 31 one-stop centres across the country to access all public e-services. Substantial sums have also been allocated to support scaling up the national address database and e-commerce reform initiatives for TPC to ease the logistics challenges of small businesses trading online. Further, the DTP is providing opportunities for local consultancies involved in the implementation.

However, the DTP does not appear to allocate funds to improve or subsidise the costs of digital devices for users. This remains a challenge, considering that one of the main barriers to usage is affordability (see Section 2.2). Regarding digital literacy and skills, there are plans under the DTP to establish five tech hubs for youth, entrepreneurs and SMEs. The hubs are to be housed in training institutions or universities, which suggests digital skills here will be tied in with the formal education system. There is a need to train non- or semi-literate members of the public on basic digital skills and how to use digital tools and services (less than 0.5% of the funds seem to have been earmarked for broad digital literacy campaigns via traditional and social media channels).

7.2.2 South Korea funded projects

South Korea has recently emerged as a preferred partner in funding projects related to national identity systems in Tanzania through the provision of concessional loans. Before now, South Korea's priority areas for collaborating with Tanzania have been in the areas of water management, health, transport, education, and energy.¹⁴¹ The strengthening

of Tanzania's national ID system is expected to provide additional means of verification to enable citizens access to financial services, among others. It is also planned to be used as a means of digital ID to enhance trust in the country's digital ecosystem and curb cyber fraud.

¹³⁹ See: [Digital Economy for Africa Initiative](#).

¹⁴⁰ See: [The Digital Transformation Strategy for Africa \(2020-2030\)](#).

¹⁴¹ See: [The Republic of Korea's Country Partnership Strategy for the United Republic of Tanzania 2016-2020](#).

7.2.3 European Union funded projects

The EU's D4T project seeks to improve e-government, inclusive connectivity, and digital trade. The D4T project also supports connectivity investments, digital skills training for women, innovation hubs for youth, and acceleration programmes for the fintech sector. As a partner, the EU's interest is to deliver sustainable democratic values, good governance, and equal opportunities through its projects. Further, since the EU is looking to increase its role in global digital leadership, it has increased its focus on providing support for digital policymaking in Tanzania. A major focus of the EU's D4T initiative is to provide continuing support for e-government through policy reform strategies

7.2.4 China funded projects

China remains Tanzania's topmost trade partner and source of foreign direct investment.¹⁴² In the last decade, China has played a significant part in Tanzania's development and digitalisation agenda by bringing affordable connectivity through a series of concessional loans in the range of ~1.5% interest rate, building an optical fibre broadband network that connects multiple regions, building data centres and base stations, facilitating technology exchange programs, providing cloud services and network upgrade services to MNOs and offering cheaper consumer products e.g. handsets, tablets

7.2.5 UAE planned collaboration

Tanzania has recently received positive attention from Arab states. Earlier in 2022, Tanzania participated in the Dubai Expo where several MoUs were established between the Tanzanian Government and the UAE Government, and the Tanzanian Government and the

related to cybersecurity, data protection, and digital trade support laws. The objective is to promote EU ideologies in the digital regulatory space in Tanzania, particularly in deploying the use of government electronic services for Tanzanians.

While it may appear that the DTP and D4T might overlap in areas such as supporting innovation hubs, both projects are led by the MICIT, which should help prevent duplication and allow for effective use of resources to expand the reach of initiatives. Funding support is similar to the DTP and will be provided through annual disbursements to augment MICIT's budgetary allocation.

and operating systems, among others.¹⁴³ These contributions have the potential to spur growth and development.

China's involvement in Tanzania is part of its broader vision to find export markets for its industry in line with its digital silk road priorities, to help Chinese companies become global champions, and to achieve broadly defined tech leadership.¹⁴⁴ For instance, Huawei appears to now have a significant lead in building Africa's 5G network.¹⁴⁵

private sector.¹⁴⁶ One of the MoUs targets investment in a mobile phone assembly plant in the country, with the goal of making cheaper locally assembled mobile devices more accessible to the public. Such investment could help close the huge usage gap.

Reflection

- Significant donor funding in the sector goes to or through the government, with little support for local CSOs or NGOs involved in the space. There is an opportunity to support private sector and CSOs with long-standing experience in addressing digitalisation gaps for more grassroots change.

¹⁴² See: [FDI](#)

¹⁴³ CGTN (2021), [China, Tanzania reaches important agreements on cooperation](#)

¹⁴⁴ Belt and Road Portal (2019), [The Belt and Road Initiative Progress, Contributions and Prospects](#)

¹⁴⁵ TechCabal (2022), [The Next Wave: Should Africa be worried about Chinese tech dominance?](#)





¹⁴⁶ Africa Press (2022), [How Tanzania reaped big at Dubai Expo 2020](#)

08 Recommendations and opportunities for speeding up digitalisation



Below we suggest actions required to fast-track digitalisation and digital inclusion in Tanzania:

Need	Action	Actors
<p>▶ Increased adoption and usage of digital infrastructure through market- and policy-driven initiatives to improve affordability.</p>	<p>Provide flexibility in payments and alternative credit assessment to expand device ownership and capacity to upgrade mobile phones, e.g. assessment of creditworthiness by analysing mobile subscriber data, top-up patterns, breadth of social networks, and other relevant information.</p>	<p>Financial Institutions, BOT, MNOs</p>
	<p>Consider direct support either through subsidies for targeted user groups or guarantee phone financing by financial institutions, and work with MNOs for distribution, monitoring and evaluation.</p>	<p>UCSAF, Financial Institutions, MNOs</p>
	<p>Review the impact of sector-specific taxes and fees on the affordability of mobile devices and mobile services, and implement tax policies that maximise the capacity and incentives of MNOs to invest in network infrastructure.</p>	<p>TRA, TCRA, MoFP, MICIT</p>
	<p>Optimise policies and regulations that have a significant impact on the key costs of providing connectivity services e.g. timely and affordable spectrum auctions, license terms and conditions that do not increase costs unnecessarily, etc.</p>	<p>MICIT, TCRA</p>
	<p>Encourage trial of mobile internet services with promotional deals.</p>	<p>MNOs</p>
<p>▶ A more digitally aware and skilled society.</p>	<p>Invest in enhancing digital skills and literacy by tailoring the education curriculum and introducing courses on digital skills from introductory to advanced levels, enhance teacher training in digital skills development, and increase access to digital equipment in schools for practice sessions.</p>	<p>MICIT, Ministry of Education, Science and Technology, NGOs, and Donor Organisations.</p>
	<p>Create targeted training programmes for citizens by leveraging the experience and expertise of private sector leaders, such as tech companies and non-profit organisations working in the digital space.</p>	<p>Government, Private Sector</p>
	<p>Increase technical and financial support to innovation hubs and accelerator programmes that support tech entrepreneurship.</p>	<p>ICTC, COSTECH, Donor Organisations, Innovation Hubs</p>
	<p>Raise awareness of the role of frontier tech and support existing initiatives that seek to develop the ecosystem and build skills.</p>	<p>ICTC, Donor Organisations, Private Sector</p>
<p>▶ Enhanced digital rights and online safety and security.</p>	<p>Provide users, especially women, with the tools to increase their knowledge and skills to mitigate online risks; support NGOs and civil society organisations that advocate for digital rights.</p>	<p>Donor organisations, Government</p>
	<p>Finalise the Personal Information Protection Bill to introduce mechanisms that provide greater confidence for users of digital services. Financial and expertise support for the independent data protection authority that will be mandated to implement the data protection act.</p>	<p>MICIT, TCRA, Donor Organisations</p>

Need	Action	Actors
<p> Reduced coverage gap in rural areas by stimulating demand and reducing costs.</p>	<p>Enhance demand for mobile services in rural areas to unlock revenue opportunities and improve the business case for network expansion by extending government-to-business and government-to-citizens e-services to more local government institutions.</p>	<p>e-GA, PO-RALG, MICIT</p>
	<p>Support more forms of infrastructure sharing arrangements and PPPs to de-risk investment in underserved communities.</p>	<p>TCRA, MNOs, Donor Organisations</p>
	<p>Review the complexity and diversity of regulations required to deploy wireless network infrastructure at the local government level and encourage harmonised and clear requirements.</p>	<p>TCRA, Local Government Authorities</p>
<p> More mature e-government landscape.</p>	<p>Strengthen e-GA's expertise and resources for coordination and implementation of e-government initiatives.</p>	<p>PO-PSMGG, Donor Organisations</p>
	<p>Adopt a user-friendly approach to developing and deploying digital e-government applications. In addition, consider designing a single government website for users to access all e-services.</p>	<p>MDAs, e-GA, Donor Organisations, Private Sector</p>
	<p>Invest in upskilling public sector officials and raise citizen awareness of existing government digital services.</p>	<p>Government, Donor Organisations</p>
	<p>Support government capacity for greater system interoperability, data integration and big data analysis, especially at the local level.</p>	
<p> Strengthened development of digital business and e-commerce.</p>	<p>Implement a national e-commerce strategy and relevant legislation to promote e-commerce growth and enhance consumer protection. Also, the establishment of a consumer rights advocacy body is required to build trust.</p>	<p>MIIT, MICIT</p>
	<p>Raise awareness of the economic benefits SMEs and microentrepreneurs can gain through digitalisation.</p>	<p>MIIT, Innovation Hubs</p>
	<p>Work with relevant SME and trade promotion agencies in conducting a skills gaps analysis for informal SMEs to identify the level of readiness based on the broad set of skills required to successfully start and operate an e-commerce venture.</p>	<p>MIIT</p>
	<p>Conduct a process assessment of TPC's operations to identify areas causing inefficiencies and how to address that.</p>	<p>TPC, Donor Organisations</p>
<p> Enhanced policy coordination.</p>	<p>A comprehensive roadmap for actualising digitalisation and harnessing the benefits that come with that.</p>	<p>MICIT</p>
	<p>Promote PPPs as a means of implementing digitalisation programmes for more sustainable interventions.</p>	<p>Government, Donor Organisations</p>

09 Annexes



Annex 1: Stakeholder mapping

The stakeholders engaged as part of this research include the following:

S/N	Name of organisation	S/N	Name of organisation
1	Ministry of Information, Communication and Information Technology	14	UNCDF
2	Ministry of Finance and Planning	15	University of Dodoma
3	President's Office - Regional Administration and Local Government	16	Digital Opportunity Tanzania (DoT)
4	e-Government Authority	17	Tanzania Private Sector Foundation
5	ICT Commission	18	Tanzania Start-up Association
6	Tanzania Communications Regulatory Authority	19	Women at Web Tanzania
7	Tanzania Telecommunications Corporation (implements the NICTBB)	20	Media Convergency
8	Commission for Science and Technology	21	Financial Sector Deepening Trust
9	Universal Communications Service Access Fund	22	Sahara Ventures
10	Tanzania's Embassy to Korea	23	Vodacom
11	World Bank	24	Airtel
12	EU Digital for Development Hub in Tanzania	25	AI Lab
13	United Nations Development Programme	26	Digital Mobile Africa
		27	Magila Tech
		28	Inalipa
		29	Piki

Annex 2: Examples of women's digital rights advocacy groups

Women at Web Tanzania: Powered by Media Convergency, a multidisciplinary ICT company, Women at Web aims to enhance women's digital participation online by promoting safe spaces and advocating against online gender-based violence. In addition to online and offline advocacy activities, and digital training and mentorship programmes, Women at Web also provides mental health support and conducts research to improve the availability of data on online gender-based violence in Tanzania to inform policymaking and improve awareness in society.¹⁴⁷

Digital Opportunity Trust multistakeholder Gender and Digital Skills Working Group: Established to accelerate digital literacy among young women in Tanzania. The working group is comprised of members of the development community, MNOs, tech companies, policymakers and regulators who work together to reduce the current gender gap in ICT access and use and improve digital inclusion for women in Tanzania.¹⁴⁸

¹⁴⁷ See: <https://womenatweb.co.tz/about/>

¹⁴⁸ See: <https://tanzania.dotrust.org/gender-and-digital-skills-working-group-co-creation-workshop/>

Annex 3: Mobile sector tax regime

Tax type	Base	Rate (End of 2021)	Changes (As at Oct 2022)
VAT	<ul style="list-style-type: none"> – All mobile services/products except phones. 	<ul style="list-style-type: none"> – 18% 	Reversal of VAT exemption on mobile devices.
Levies	<ul style="list-style-type: none"> – Airtime or recharge amount – Mobile money transfer sum 	<ul style="list-style-type: none"> – Ranges from TZS5 to TZS223. – Between TZS10 and TZS10,000 depending on the sum deposited or withdrawn. 	Mobile money levy scrapped.
Excise duties	<ul style="list-style-type: none"> – Electronic communication services. – Interconnect fee on international calls. – Money transfer services. 	<ul style="list-style-type: none"> – 17% – \$0.12 per minute (minimum charge) – 10% of transfer and withdrawal fees. 	
Custom duties	<ul style="list-style-type: none"> – SIM cards and scratch cards cost (including insurance and freight value). 	<ul style="list-style-type: none"> – 25% 	
Regulatory fees	<ul style="list-style-type: none"> – Gross revenue less local interconnect cost. – Qualifying turnover less all interconnect cost. – Volume of mobile numbers. 	<ul style="list-style-type: none"> – 1% – 1% – \$0.2 per number 	
<ul style="list-style-type: none"> – Licence fee – Universal service fee – Numbering fees 			

Annex 4: Institutions supporting Tanzania's digitalisation

Under the MICIT:

- **Tanzania Communications Regulatory Authority (TCRA):** Responsible for providing an enabling environment through appropriate regulations and standard setting for electronic and postal communications to encourage innovation and affordable/reliable communication services. In practice, TCRA issues licenses to operators, sets standards and guidelines, and monitors performance of the sector based on analysis of subscriber database and mandatory operator reporting.
- **Information and Communication Technologies Commission (ICTC or the Commission):** ICTC's mandate is to "promote and foster investment and development of the ICT industry, advise and collaborate with other stakeholders on ICT research and foresight on ICT trends, and build the capacity of ICT Professionals in Tanzania". In practice, the Commission seems to be focused on supporting start-ups and SMEs to improve their capacity to compete in the global digital economy. It achieves this function by facilitating digital skills programmes and accelerator hubs organised by NGOs and the private sector, and by providing funding support for such programmes.
- **Universal Communications Service Access Fund (UCSAF):** In collaborating with MNOs, UCSAF promotes inclusive access to telecommunications services in areas of the country where communication networks either do not exist or are weak and outdated.
- **Tanzania Telecommunications Corporation (TTCL):** TTCL is a government-owned corporation charged with managing and operating the NICTBB on behalf of the MICIT. It provides MNOs with equal access to the backbone network to enable their delivery of mobile and digital services.
- **Tanzania Posts Corporation (TPC):** TPC is the national postal operator. Its role is to provide mail, parcel, and courier logistics and promote e-commerce services.

Others outside the MICIT:

- **Ministry of Finance and Planning:** Tasked with supporting the planning/financing to realise the objectives set out in the ICT Policy, as it oversees the sourcing of funds for the implementation of government programmes, and leads the Government Negotiation Team for external funding. Working closely with the MoFP in the negotiating process is the Ministry of Foreign Affairs, the Office of the Attorney General, the Bank of Tanzania, and MICIT in respect to digital or ICT related projects.
- **The internet or e-Government Authority (e-GA):** e-GA plays a focal role in the administering, managing, and operationalising of Tanzania's e-government strategy to improve public administration. While e-GA supports MICIT, it sits under the Office of the President – Public Service Management and Good Governance and is overseen by the Tanzania Intelligence and Security Services. E-GA provides standardisation for government systems and enhances the capacity of public institutions to deliver public e-services.
- **Commission for Science and Technology (COSTECH):** COSTECH develops technical expertise in the country through deliberate actions to promote science, technology, and innovation for the purpose of social-economic development. Its major success has been its contribution to the incubation of tech start-ups.
- **Bank of Tanzania (BOT):** BOT regulates, monitors, and supervises national payment systems. It works closely with TCRA in relation to mobile money and financial inclusion.
- **Tanzania Revenue Authority (TRA):** Oversees revenue collection in Tanzania and works with TCRA to collect regulatory license fees and levies payable by MNOs.
- **President's Office – Regional Administration and Local Government:** Works in partnership with the MICIT to support the actualisation of digital inclusion and penetration, such that interventions cascade down from the central to local levels in the country.

Annex 5: FCDO's digitalisation projects in Tanzania

Project	Description	Implementing/ beneficiary partners
<p>Public Finance Management Reform Programme Phase V (Programme ended on 30 June 2022)</p>	<p>FCDO provides technical support and donor funding to the Tanzania government through the Ministry of Finance and Planning to strengthen public financial management (PFM) for good governance. Support activities have focused on advising on digitising most of the PFM systems – procurement, budgeting, planning, and accounting, including setting up a single treasury account, and introducing control measures such as systems issuing control numbers to users to enable them to pay for government services.</p> <p>FCDO has also engaged in funding the procurement and development of PFM information systems, funding training programmes, and giving scholarship grants to locals for advanced studies in the field. Since purchasing off-the-shelf systems and software e.g. EPICOR was expensive, part of the technical advisory provided was to expand the Ministry's team with local experts that could support the design of IT systems in-house.</p> <p>Some of the digital intervention/activities/solutions supported include; GePG, Local Government Revenue Collection System, Government Accounts Consolidation System, MUSE replacing IFMS-Epicor, Central Budget Management System, Project Management Information System, Recommendation Implementation Information Tracking System, and Tanzanian National e-Procurement System, among others.</p>	<p>Ministry of Finance and Planning.</p>
<p>Electronic Fiscal Devices in Tanzania-EFD 2022-23</p>	<p>Supporting the development of a dashboard for Electronic Fiscal Devices (EFD) data and providing technical assistance for the analysis of EFD data.</p>	<p>The London School of Economics and Political Science, through the International Growth Centre, TRA.</p>

Project	Description	Implementing/ beneficiary partners
FUNGUO Innovation Programme	Building on the work of the UK-funded Human Development Innovation Fund programme (HDIF), the aim of FUNGUO is to increase the number of successfully scaled innovation ventures/start-ups to contribute to the national development goals and the SDGs in Tanzania. This will be achieved through the programme's contribution to addressing the stumbling blocks and gaps in the innovation ecosystem that hinder innovative impact ventures from scaling, while promoting an environment that promotes innovation for development and empowers innovators, entrepreneurs, and enablers.	UNDP
EdTech Hub	Provides support in the design of a new 'tech-enabled' teacher professional development model, grounded in in-school communities of learning. In addition, supports education systems data collection and analysis to inform decision-making, as well as the Zanzibar government's efforts to implement a 'virtual learning environment' to help them disseminate educational content.	Tanzania Institute of Education (TIE), President's Office, Regional Administration and Local Government (PO-RALG) Ministry of Education, Science and Technology (MOEST)
East Africa Trade	Digital intervention/activities/solutions supported: <ul style="list-style-type: none"> – Transport Corridor Observatory – Tanzania Mercantile Exchange – Electronic Single Windows for Trade - Ministry of Livestock and Fisheries, Export Processing Zone Authority – Tanzania Bureau of Standards, digitisation of trade systems – Tanzania and Zanzibar Chambers of Commerce Digital systems 	Trademark East Africa
Frontier Technology live-streaming programme.	Apply frontier technologies to the biggest challenges in development e.g. water management.	Frontier Technologies Hub

Annex 6: Glossary

Artificial Intelligence	Artificial Intelligence (AI) refers to the use of data to make decisions or perform tasks normally considered to require human knowledge, intelligence, learning, and understanding. Such tasks include visual perception, speech recognition and decision-making.
Big data	Big data is a combination of structured, semi-structured, and unstructured data collected by organisations that can be mined for information and used in machine learning projects, predictive modelling and other advanced analytics applications.
Connectivity	Refers to connection to the internet or other communication networks.
Consumer protection	Consumer protection is a selection of laws that protect individual consumers against unfair selling practices for goods, services, and digital content.
Coverage gap	Populations that do not live within the footprint of a mobile broadband network.
Digital economy	Incorporates all economic activity reliant on or significantly enhanced by using digital means including technologies, infrastructure, services, and data.
Digitalisation	Enabling or improving social, business, and government processes by leveraging digital technologies and digitised data.
Digital skills	Skills needed to use digital devices, communication applications, and networks to access and manage information, from basic online searching and emailing to specialist programming and development.
Digital tools	Electronic tools, systems, devices, and resources that generate, store or process data.
Digital transformation	The economic and societal effects of digitalisation.
E-commerce	The production, distribution, marketing, sale, or delivery of goods and services by electronic means.
E-government	Involves using ICT to support processes within the government as well as for the delivery of services to beneficiaries, such as citizens, businesses, and other organisations in all sectors.

Emerging technology	Emerging technologies (also referred to as frontier technologies) are defined as potentially disruptive technologies that can address large-scale challenges or opportunities. Frontier technologies include AI, big data, blockchain, the Internet of Things (IoT), augmented reality, virtual reality, drones, and robotics.
Interoperability	Enables unrestricted data sharing and use between different systems. In an interoperable system, two or more systems can share and exchange data so that it is understood by all systems involved.
Mobile broadband	3G, 4G or 5G technologies.
Mobile money	A mobile money service enables transferring money and making and receiving payments using a mobile phone. It usually targets the unbanked and offers a network of transactional points (e.g. mobile money agents) that make the service widely available to everyone.
Political settlement	Refers to political compromises between powerful groups in a society that allocate the distribution and use of power and shape economic institutions.
Private-public partnerships	A mechanism for the government to procure and implement public infrastructure and/or services using the resources and expertise of the private sector.
Regulatory sandbox	Refers to a regulatory approach that allows live, time-bound testing of innovations under a regulator's oversight, typically summarised in writing and published. Regulatory sandboxes let novel financial products, technologies, and business models be tested under a set of rules, supervision requirements, and appropriate safeguards.
Spectrum	Spectrum relates to the radio frequencies allocated to the mobile industry and other sectors of communication over the airwaves.
Usage gap	Populations that live within the footprint of a mobile broadband network but do not use mobile internet.

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