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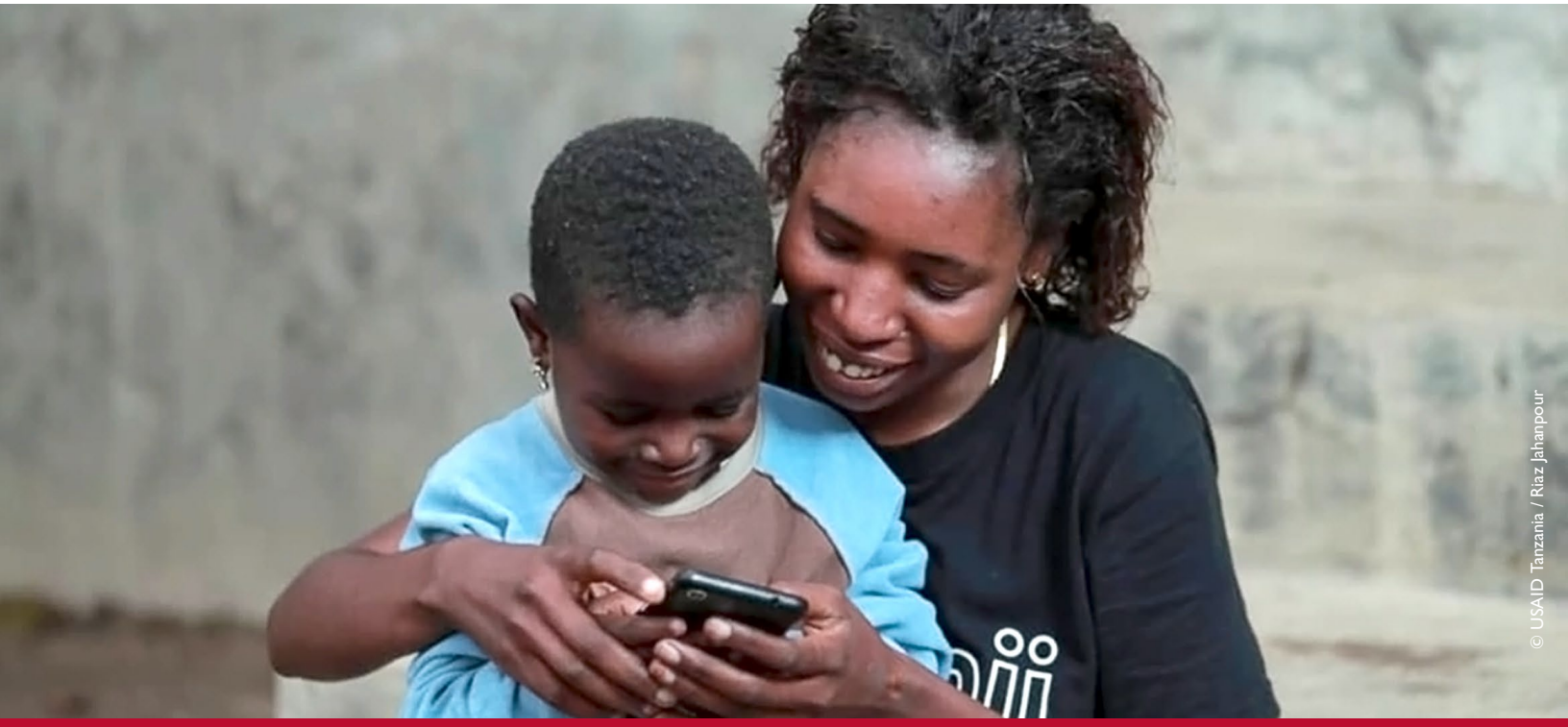

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DIGITAL ECOSYSTEM COUNTRY ASSESSMENT (DECA)

Tanzania

MAY 2023

DigitalFrontiers
SCALING DIGITAL DEVELOPMENT

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Tanzania

May 2023

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The authors accept responsibility for any errors or inaccuracies in this report.

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KEY TERMS BOXES

ACRONYMS

ADC	Alternative Delivery Channels
AfCFTA	African Continental Free Trade Area
AI	Artificial Intelligence
AML	Anti-Money Laundering
ATM	Automated Teller Machine
B2G	Business to Government (payments)
BoT	Bank of Tanzania
CBDC	Central Bank Digital Currency
CCM	Chama Cha Mapinduzi
ccTLD	country code Top Level Domain
CDCS	USAID Country Development Cooperation Strategy
CDD	Customer Due Diligence
CERT	Computer Emergency Response Team
CII	Critical Information Infrastructure
CIPESA	Collaboration on International ICT Policy for East and Southern Africa
COSTECH	Commission for Science and Technology
CSO	Civil Society Organization
DECA	Digital Ecosystem Country Assessment
DFS	Digital Financial Services
DNS	Domain Name System
DO	Development Objective
DOT	Digital Opportunity Trust
EAC	East African Community
e-GA	e-Government Authority
EGDI	UN E-Government Development Index
EPOCA	Electronic and Postal Communications Act
EASSy	East Africa Submarine Cable System
FCDO	Foreign Commonwealth and Development Office
FSDT	Financial Sector Deepening Tanzania
FSP	Financial Service Provider
FSR	Financial Services Registry
GCI	Global Cybersecurity Index
GIF	Greater Internet Freedom
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoT	Government of Tanzania
GSMA	GSM (Global System for Mobile Communications) Association
gTLD	generic Top Level Domain
HDIF	Human Development Innovation Fund
ICDT	International Center for Tax and Development
ICT	Information and Communications Technology

IESC	International Executive Service Corps
IFC	International Finance Corporation
IGF	Internet Governance Forum
IIPS	Instant and Inclusive Payment Systems
ILO	International Labor Organization
IPs	Implementing Partner
ISACA Tz	Information Systems Audit and Control Association Tanzania Chapter
ISOC	Internet Society
ISP	Internet Service Provider
ITU	International Telecommunications Union
IXPs	Internet eXchange Points
KYC	Know Your Customer
LHRC	Legal & Human Rights Center
MDA	Ministries, Departments, and Agencies
MFI	Microfinance Institution
MFI	Micro Finance Institutions
MICIT	Ministry of Information and Communication Technology
MNO	Mobile Network Operators
MoEST	Ministry of Education Science and Technology
MoF	Ministry of Finance
MSMEs	Micro Medium and Small Enterprises
NACTEVET	National Council for Technical and Vocational Education and Training
NCSI	National Cybersecurity Index
NCSS	National Cyber Security Strategy
NFC	Near Field Communication
NFIF	National Financial Inclusion Framework
NGO	Non-Government Organization
NICTBB	National ICT Broadband Backbone
NIDA	National Identification Authority
NPS	National Payment System
OGP	Open Government Partnership
P2G	Person to Government (Payments)
P2P	Peer to Peer (transactions)
PO- RALG	President's Office – Regional Administration & Local Government
PoS	Point of Sale
PO-PSM	President Office Public Service Management and Good Governance
ProICT	Promoting American Approaches to ICT Policy and Regulation
PSP	Payment Service Provider
PSPs	Payment Service Providers
PSSN	Productive Social Safety Network
PWDs	Persons With Disabilities
QR	Quick Response

REA	Rural Electrification Authority
RSF	Reporters Without Borders
RTN	Rwanda Telecenter Network
SACCO	Savings and Credit Cooperative
SADC	Southern African Development Community
SHF	Small Holder Farmers
SIM	Subscriber Identity Module
SME	Small and Medium Enterprise
STEM	Science, Technology, Engineering, and Mathematics
TA	Technical Assistance
TAMNOW	Tanzania Mobile Network Association
TANESCO	Tanzania Electric Supply Company
TANROAD	Tanzania National Roads Agency
TARURA	Tanzania Rural Roads Agency
TASAF	Tanzania Social Action Fund
TCRA	Tanzania Communications Regulatory Authority
THRDC	Tanzania Human Rights Defenders Coalition
TIE	Tanzania Institute of Education
TIPS	Tanzania Instant Payment System
TISPA	Tanzania Internet Service Providers Association
TSA	Tanzania Startup Association
TTCL	Tanzania Telecommunications Corporation Ltd
TTCL	Tanzania Telecommunications Company Limited
TVWS	TV White Space
Tz-CERT	Tanzania Computer Emergency Response Team
tzNIC	Tanzania Network Information Center
TZS	Tanzania Shillings
UCSAF	Universal Communication and Services Access Fund
UNCDF	United Nations Capital Development Fund
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USD	United States Dollar
USF	Universal Service Fund
USSD	Unstructured Supplementary Structured Data
UTRAMS	Unified Technical Request and Mission Support
VPNs	Virtual Private Networks
WACFI	Women Affairs Committee for Financial Inclusion
WTO	World Trade Organization

Executive Summary

BACKGROUND

The United States Agency for International Development's (USAID) Digital Strategy was launched in April 2020 to achieve and sustain open, secure, and inclusive digital ecosystems that contribute to broad-based, measurable development and humanitarian assistance outcomes through the responsible use of digital technology.[1]

The Digital Ecosystem Country Assessment (DECA), a flagship initiative of the Digital Strategy, informs the development, design, and implementation of USAID's strategies, projects, and activities. The DECA looks at three pillars of a nation's digital ecosystem: (1) digital infrastructure and adoption; (2) digital society, rights, and governance; and (3) digital economy. The DECA aims to inform how USAID/Tanzania can understand, work with, and strengthen the country's digital ecosystem. To maximize utility and impact, the section below outlines how DECA findings and each resulting recommendation can directly support USAID/Tanzania's Development Objectives (DOs).[2] The DECA does not evaluate existing programs, but rather assesses Tanzania's digital ecosystem and identifies how USAID/Tanzania's current or future programming can build upon or strengthen that ecosystem. DECA findings and recommendations are mapped to USAID/Tanzania's Results Framework.

The USAID/Tanzania 2020-2025 Country Development Cooperation Strategy (CDCS) includes three strategic priorities:

1. Foundational skills of children below age 15 improved
2. Empowerment, productivity, and engagement of Tanzanians aged 15 to 35 increased
3. Capacity of state and non-state actors strengthened to benefit future generations

KEY FINDINGS

The contrasts in Tanzania's digital ecosystem resulted, for the most part, from the 2015 - 2021 rule of former President John Pombe Magufuli. While the government prioritized internet infrastructure expansion and sought to enable more widespread use, key enabling policies and regulations including on data privacy and protection are missing. Last-mile connectivity gaps persist and regulation does not support or incentivize innovation. Sustained adoption is disincentivized by high taxes on mobile phone ownership, subscriptions, and mobile money transactions that historically exceeded those in most countries in the region.[3] Under former President Magufuli, online freedoms were curtailed and digital rights advocacy was silenced aggressively. About one and a half years into President Hassan's leadership, there is limited evidence of legislative or political change to safeguard digital rights and open the civic space. Despite this lack of change, the Government

1 USAID Digital Strategy 2020-2024. https://www.usaid.gov/usaid-digital-strategy

2 While USAID/Tanzania works in mainland Tanzania and Zanzibar, the DECA focused its research on mainland Tanzania. Three of the 76 interviewees explicitly focus on Zanzibar while a few others work in mainland Tanzania and Zanzibar, thus there are a few references and comparisons between mainland and Zanzibar. However, this DECA is not a comprehensive assessment of Zanzibar's digital ecosystem.

3 "Digital Inclusion and Mobile Sector Taxation in Tanzania." n.d. Gsma.Com. Accessed September 8, 2022. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/01/Digital-inclusion-mobile-sector-tax-Tanzania.pdf.

of Tanzania (GoT) continues to indicate that cybersecurity, closing the usage gap, and supporting growth of the digital economy remain strong government priorities.[4]

While the GoT prioritized increasing connectivity for all citizens over the last two decades, last-mile connectivity gaps persist. Citizens enjoyed 95 percent 2G and 83 percent 3G coverage in 2021, compared to 83 percent 2G and 16 percent 3G coverage in 2014. However, Tanzania lags behind all of its regional neighbors in terms of coverage.[5] Progress was driven by access to international submarine fiber cables, the government's push to construct and expand the national fiber backbone, and entrance of multiple mobile network operators (MNOs). Barriers to continued and inclusive expansion of connectivity infrastructure include the government's dominant role in deploying fiber and a lack of policies that incentivize and enable innovative alternative connectivity solutions. A few small-scale community-led or private sector-led projects are experimenting with the use of TV white space (TVWS) and aerostat balloon technology to bring connectivity to under-connected and unconnected areas. Their scalability and sustainability is hampered by a challenging regulatory environment.

There is a large usage gap[6] in Tanzania that is attributed to factors including lack of device and mobile broadband affordability, low levels of digital literacy, and a dearth of locally relevant content. Consumers in Tanzania are price sensitive due to low average income levels. Interviewees from the government, private, and development sectors noted that device affordability is a barrier to meaningful use, particularly for marginalized rural populations including women. In 2021, 1 GB of data in Tanzania was 4.9 percent of average monthly income. This is close to the average for African countries, but more expensive than the global 1-for-2 standard of 2 percent.[7] Digital literacy was cited frequently as a major barrier to increased adoption and use of digital technologies. However, there is no GoT strategy explicitly promoting or incentivizing use cases geared toward the average Tanzanian or the digital literacy training that would be required for their uptake. User-level barriers to uptake are compounded by the lack of locally relevant content. While Swahili is the most widely spoken language, the majority of available online content is in English, of which only 10 percent of the population speak.[8]

While there has been greater openness over the past two years, nearly all of the restrictive laws remain in place and prospects for amending or repealing them remain uncertain. The repressive regulations during President Magufuli's leadership encouraged self-censorship and silenced local activists, journalists, and some civil society organizations (CSOs) that were advocating for digital rights and speaking out online. As a result, Tanzanian civil society is weak and requires operational support as well as capacity building to more effectively organize, advocate, and raise awareness. In November 2022, the Tanzania parliament approved the Personal Data Protection Bill. As of December 2022, it is awaiting President Hassan's signature.[9] How the bill is put into action could serve as a marker for how the Hassan Administration approaches regulation of the digital space.

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4 Government entity. Interview with DECA Team, June 2022. Also refer to the following government strategies: Tanzania Digital Economy Framework, National Innovation Framework, and National Cybersecurity Strategy.

5 "GSMA Mobile Connectivity Index. Tanzania Index Score 2021." https://www.mobileconnectivityindex.com/#year=2021&zoneIsocode=TZA&analysisView=TZA

6 "GSMA The State of Mobile Connectivity Report. 2020. Mobile for Development. " The usage gap refers to the share of the population living within the footprint of a mobile broadband network but not using mobile internet. https://www.gsma.com/r/somic/

7 "ICT Price Baskets." International Communication Union. (ITUt) https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/IPB.aspx

8 "List of Countries by English-speaking population." Wikipedia. https://en.wikipedia.org/wiki/List_of_countries_by_English-speaking_population

9 "Tanzania: Parliament passes Personal Information Protection Bill." Data Guidance. November 15, 2022. The Personal Data Protection Bill was approved in November 2022, after the majority of DECA research concluded. This report therefore does not include an in-depth analysis of the bill. https://www.dataguidance.com/news/tanzania-parliament-passes-personal-information

The government is committed to developing and promoting digital government services and systems and often relies on software solutions developed in-house. Building digital solutions in-house can enable cost efficiency and sustainability as it promotes development of internal talent and prevents reliance and expenditure on external vendors. In recent years there has been a move to unify government data systems across ministries and levels. However, capacity and connectivity is a challenge in adoption at the local government levels. Lessons can be learned from the health sector, which leads in developing standards and systems for data tracking, management, and decision-making.

While the government has a National Cyber Security Strategy (NCSS) 2018-2022 that outlines a comprehensive framework for detecting, preventing, and combating cyber threats, the strategy is not shared widely or publicly.[10] The NCSS has five goals: protect critical information infrastructure (CII); increase cybersecurity technical capabilities and awareness; promote collaboration locally, regionally, and internationally; enhance incident response; and enhance legal and regulatory frameworks. The Tanzania Computer Emergency Response Team (Tz-CERT), managed by the Tanzania Communication Regulatory Authority (TCRA) is the main entity for coordinated response to cybersecurity threats.[11] TCRA recognizes persistent gaps in the country's cybersecurity capabilities including in GoT staff capabilities and adequacy of equipment, despite the existence of the NCSS and ranking second in Africa on the 2020 ITU Global Cybersecurity Index (GCI).12

Mobile financial services are at the forefront of digital financial services (DFS) uptake. The DFS ecosystem is enabled by a well-established payments infrastructure including account-to-account interoperability and by stiff competition among bank and non-bank payment service providers. However, inconsistent and high tax regimes are detrimental to sustained growth. In July 2021, a tax on mobile money transactions and withdrawals increased average transaction fees by up to 369 percent (depending on transaction value).[12] While the tax was reduced in September, it did not return to July levels. Significant setbacks occurred as users moved away from digital payments in favor of less expensive transaction fees with cash or other payment methods.[13] Last-mile financial and digital financial inclusion remains a challenge. Despite the recent expansion of the agent banking network, agents must still be located within proximity to a bank branch to easily obtain access cash and e-value as needed. Financial access in rural areas remains challenging, although there are initiatives led by regulators, payment service providers, and development partners that tailor DFS product offerings to meet the needs of marginalized consumer groups, including women and youth. Consumer trust and perceptions of high costs associated with digital payments still play a role in undermining increased adoption and use.

Tanzania's startup ecosystem is growing, with startups in a variety of sectors, although it is in its infancy and not yet enabled by explicit policies or regulations. The tech startup community is supported by a strong network of ecosystem enablers, including accelerators, incubators, and other entrepreneurship support organizations that have emerged over the last five years. However, the number of viable, well-established businesses that emerge from such programs is limited. There are also gaps in the digital talent pool, which widen between genders and in rural areas not adequately covered by physical and internet infrastructure.

10 The United Republic of Tanzania, Ministry of Works, Transport, and Communication National Cyber Security Strategy 2018-2023. April 2018.

11 Global Cybersecurity Index. International Telecommunication Union. (ITU) https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx

12 "Tanzania Mobile Money Levy Impact Analysis (1st July 2021 - 31st March 2022)," Public Policy, June 27, 2022. https://www.gsma.com/publicpolicy/resources/tanzania-mobile-money-levy-impact-analysis-1st-july-2021-31st-march-2022.

13 "Tanzania Backtracks as Mobile Money Levy Proves Unpopular Across African Markets."PYMNTS. September 28, 2022. https://www.pymnts.com/taxes/2022/tanzania-backtracks-as-mobile-money-levy-proves-unpopular-across-african-markets/

E-commerce is in its early stage development in both supply and demand. Weak enabling factors such as logistics infrastructure, addressing systems, and consumer protection regulations prevent the sector from realizing its full potential. Many local e-commerce platforms are steadily gaining traction and social commerce is picking up momentum, especially among urban youth. However, e-commerce is challenged by low levels of trust on both buyer and seller sides and weak physical addressing and logistics infrastructure. Some user-centric business models get around these challenges such as the "save now buy later" approach employed by the local startup, Tunzaa.

This report makes 13 recommendations for the international development community,covering topics across the three DECA pillars. They include suggestions for how to build on current work, initiate new strategic partnerships, and plan future activities. The DECA recommendations are listed below:

1. Strengthen cybersecurity through deepening the talent pool, raising public awareness, and providing technical assistance to the government
2. Improve digital adoption and use by taking a comprehensive approach to digital literacy programming: policy, inter-donor coordination, digital literacy training
3. Enable innovative solutions for last-mile connectivity through co-creation and competition promotion
4. Improve device affordability to promote more widespread usage
5. Foster increased meaningful connectivity through the creation of locally relevant content with and for the end users
6. Promote dialogue to review and repeal laws that constrict digital rights
7. Support resilience of CSOs to advocate for digital rights and democracy including freedom of expression online
8. Support open government and partnerships for development of digital government solutions to strengthen local government in priority sectors
9. Encourage a multi-stakeholder approach to internet governance in support of increased transparency and security
10. Support the enabling environment for digital financial services by strengthening regulatory capacity for oversight and ease of doing business
11. Boost the digital talent pool by creating digital telecenters and community ICT and cybersecurity labs, especially in peri-urban and rural areas
12. Increase the efficiency of the tech startup ecosystem through coordination and specialization
13. Advance digital trade and e-commerce through providing technical assistance for policy development and capacity building

ROADMAP FOR THE REPORT

About this Assessment provides background on the DECA framework and goals. It includes a summary of USAID/Tanzania priorities, connecting them with digital solutions.

DECA Findings presents the key findings about Tanzania's digital ecosystem. This section is organized into three sub-sections by DECA pillar: digital infrastructure and adoption; digital society, rights, and governance; and digital economy.

Recommendations outline how the international development community can leverage and support the digital ecosystem to achieve improved development outcomes.

Navigation tip: the navigation bar in the footer throughout this report helps you move between sections. Dark blue text will indicate the current section you are in.

SECTION 1:

About this Assessment

USAID's Digital Strategy aims to improve USAID development and humanitarian assistance outcomes through the responsible use of digital technology and strengthen the openness, inclusiveness, and security of country digital ecosystems. The Digital Strategy and the DECA are part of USAID's holistic approach to helping achieve the Sustainable Development Goals (SDGs).

As part of the Digital Strategy implementation, the DECA examines three broad areas to understand the opportunities and challenges in a country's digital ecosystem:

1. Digital Infrastructure and Adoption
2. Digital Society, Rights, and Governance
3. Digital Economy

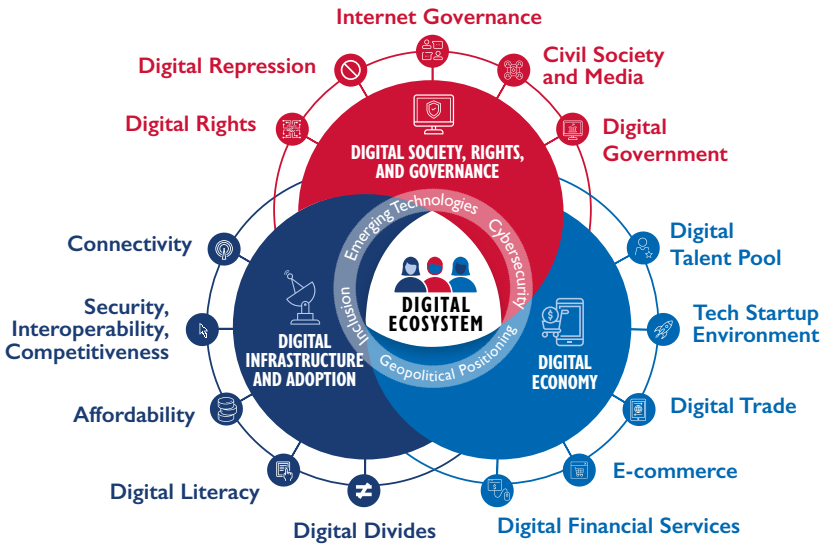
KEY TERMS | BOX 1: What is a digital ecosystem?

A digital ecosystem comprises stakeholders, systems, and an enabling environment that together empower people and communities to use digital technology to access services, engage with each other, and pursue economic opportunities.

The Tanzania DECA took place between May 2022 and October 2022. It included desk research, consultations with USAID/Tanzania, and 10 weeks of key informant interviews, two of which were conducted in-country. The research involved 76 interviews with stakeholders from civil society, academia, the private and public sectors, international development organizations, and USAID/Tanzania implementing partners.

The DECA is intended to be a rapid assessment of opportunities and challenges tailored to USAID's programmatic priorities rather than an authoritative source on the country's digital ecosystem, and thus may not cover all of USAID/Tanzania program offices and projects in-depth.

FIGURE 1: The USAID Digital Ecosystem Framework



SECTION 2:

DECA Findings

PILLAR 1: DIGITAL INFRASTRUCTURE AND ADOPTION

Digital Infrastructure and Adoption refers to the resources that make digital systems possible and how individuals and organizations access and use these resources. Digital infrastructure includes geographic network coverage, network performance, internet bandwidth, and spectrum allocation as well as telecom market dynamics around security, interoperability, and competitiveness. This pillar also examines behavioral, social, and physical barriers and opportunities for equitable adoption (digital divides, affordability, and digital literacy)—who uses and does not use digital technologies and why.

KEY TAKEAWAYS: DIGITAL INFRASTRUCTURE AND ADOPTION

FINDINGS

- **A substantial last-mile connectivity gap exists, particularly in rural areas.** Fiber backbone development is owned by the government and last-mile connectivity is perceived by the government to be done by the private sector.
- **Policy and regulation enable the expansion of digital infrastructure** and forthcoming policies such as the ICT Act intend to enable increased use of that infrastructure.
- **A large usage gap exists,** which the government attributes to high device costs. Other factors including low levels of digital literacy and lack of locally relevant content also contribute.

RELEVANT RECOMMENDATIONS

1. Enable innovative solutions for last-mile connectivity through co-creation and competition promotion
2. Improve device affordability to promote more widespread usage
3. Increase digital adoption and use by taking a comprehensive approach to digital literacy programming: policy, inter-donor coordination, digital literacy training *(cross cutting)*

INTRODUCTION

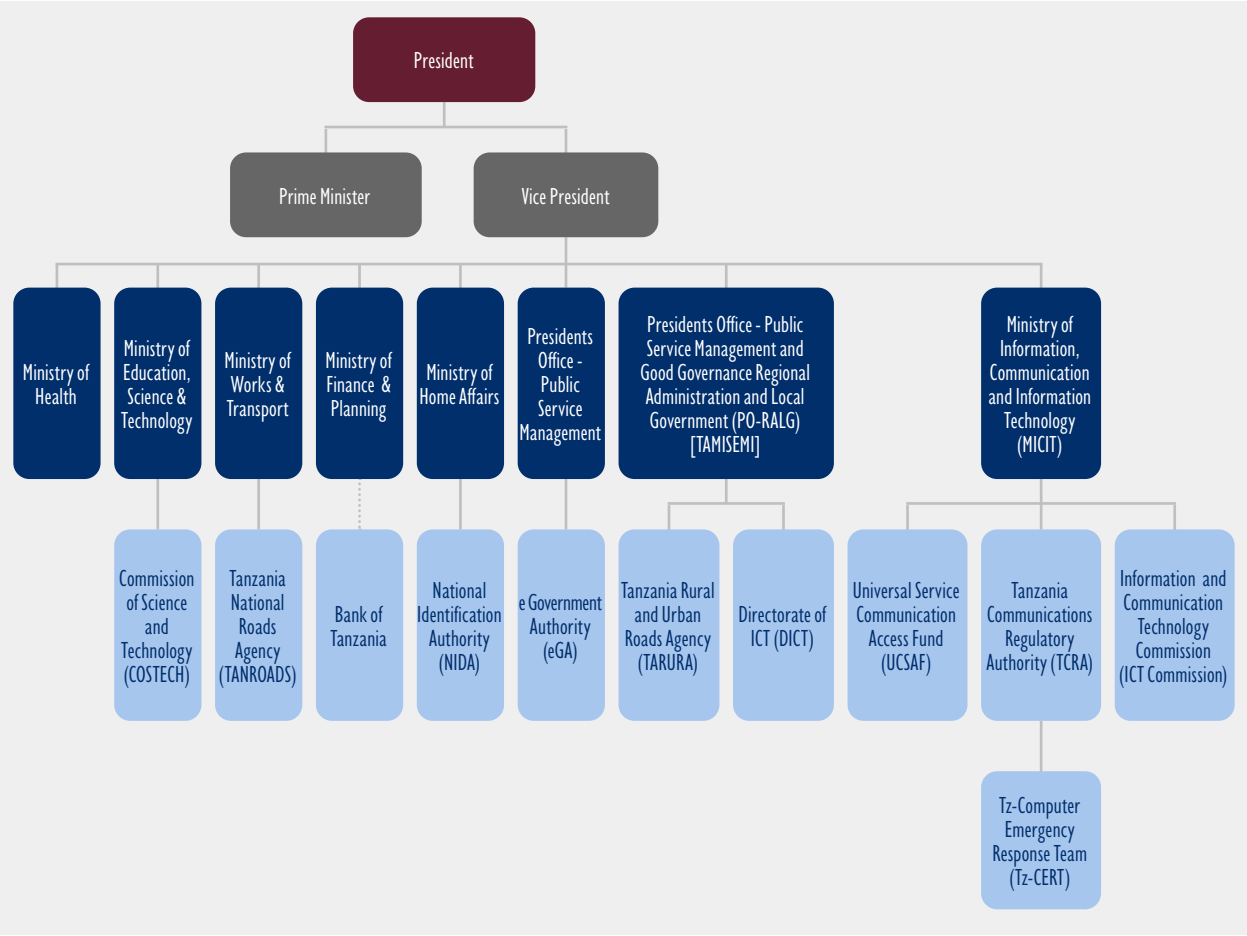
Tanzania's connectivity infrastructure expanded considerably over the last two decades, driven by access to international submarine fiber cables, construction and expansion of the national fiber backbone, and a competitive mobile network operator (MNO) market. However, gaps in regulation slow the continued expansion of critical internet infrastructure and minimal incentives for closing the last-mile connectivity gap.[14] Digital literacy, device affordability, and various overlapping digital divides prevent widespread adoption of the internet.

14 MNO. Interview with DECA Team, June 2022.

1.1 DIGITAL INFRASTRUCTURE POLICY AND REGULATION: INITIATION AND GROWTH OVER THE LAST TWO DECADES

GOVERNMENT MINISTRIES INVOLVED IN DIGITAL POLICYMAKING

FIGURE 2: Government of Tanzania, key players in the digital ecosystem[15]



The Ministry of Information, Communication, and Information Technology (MICIT) is the primary government entity in charge of ICT policy- and agenda-setting in Tanzania. Until 2020, it was part of the Ministry of Works, Transport, and Communications as the communications department, which was created in 2010.[16] In 2020, MICIT became an independent operating unit with two technical divisions:

- Communication Division that manages telecommunication and postal services; and
- Information and Communication Technology Division that manages ICT infrastructure development, digital systems, and cybersecurity and safety.

Although MICIT plays the leading role in the developing and implementing policy for Tanzania's digital ecosystem, three other ministries have significant decision-making power: the Ministry of Works and Transport; the

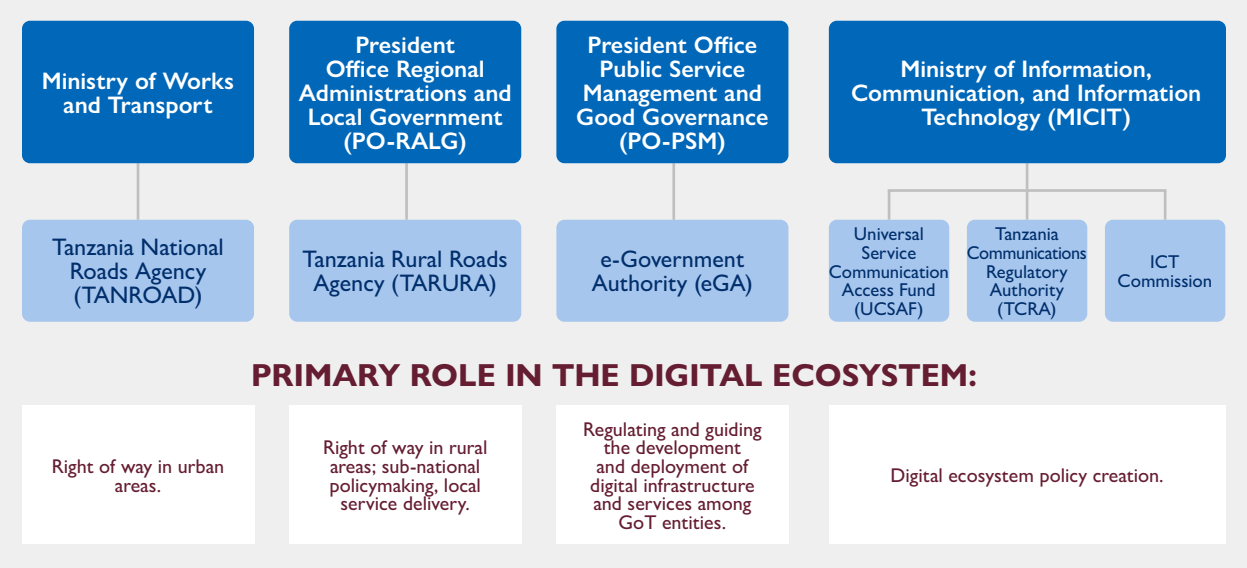
15 The Government of Zanzibar has separate ministries that manage Zanzibar-specific initiatives. They are not shown on this organizational chart as they were not a focus of this report. The E-Government Agency Zanzibar was interviewed as the equivalent body of the mainland E-Government Agency.

16 "Ministry of Works, Transport and Communications (Tanzania)." n.d. Devex. Accessed October 25, 2022. https://www.devex.com/organizations/ministry-of-works-transport-and-communications-tanzania-125129.

President's Office Regional Administrations and Local Government (PO-RALG); and the President's Office Public Service Management and Good Governance (PO-PSM) (Figure 3).

The level of involvement of each of these three ministries in developing Tanzania's digital infrastructure is determined by institutions that fall within their respective mandates. The Ministry of Works and Transport oversees the Tanzania National Roads Agency (TANROAD) while PO-RALG oversees the Tanzania Rural Roads Agency (TARURA). TANROAD and TARURA are separate agencies that manage the development and maintenance of ground transportation for national roads and rural roads, respectively. They control right-of-way and its charges for fiber infrastructure deployed along the road.

FIGURE 3: Government of Tanzania, a subset of key players in the digital ecosystem



The role of PO-RALG in digital infrastructure extends beyond the provision of right-of-way through TARURA. The ministry is responsible for the implementation of government strategies in local government (i.e., cities, municipalities, town councils, and district councils). PO-RALG is responsible for managing local service delivery in three key sectors: primary healthcare, primary and secondary education, and rural infrastructure. Of the three services, the first two are data-intensive services. PO-RALG is one of the primary consumers of internet connectivity at the grassroots level through this local public service provision.

PO-PSM is responsible for digital government systems and services. The e-Government Authority (eGA), established in 2019, sits within PO-PSM and is the government agency responsible for regulating and guiding the development and deployment of digital infrastructure and services within central government ministries, departments, and agencies (MDAs). The Division of ICT within the PO-RALG plays an analogous role to that of eGA, focusing on local governments rather than on MDAs. Both are influential in government deployment of digital infrastructure. They also build or oversee the development of government digital solutions and services on top of the digital infrastructure.

TELECOMMUNICATIONS SECTOR REGULATION AND ADMINISTRATION

Three government agencies under MICIT play significant roles in the regulation, deployment, and utilization of digital infrastructure:

- **Tanzania Communications Regulatory Authority (TCRA):** TCRA was established as the telecommunications regulator in 2003 by the Tanzania Communications Regulatory Authority Act. Its mandate includes authorizing and licensing telecommunications services and spectrum frequency; regulating levies; ensuring fair, effective, and efficient competition in offering quality services; and protecting consumers in the telecommunications industry.
- **Universal Communication and Services Access Fund (UCSAF):** UCSAF is a fund that was established in 2006 to extend digital infrastructure to underserved areas where commercial firms cannot viably deploy their services. Infrastructure built under the fund is instructed to follow open architecture, to allow operators other than the contracted operator to share the infrastructure.

KEY TERMS | BOX 2: Universal Service Fund

A **Universal Service Fund (USF)** is designed to promote network infrastructure development in areas that commercial access providers deem uneconomical. USFs subsidize programs through contributions drawn from the revenues of telecommunications operators. USF funds are often applied to help de-risk or otherwise complement network investments in underserved or unserved areas. In many cases, USFs target projects that serve schools, hospitals, and other anchor institutions where demand for services can be aggregated.

UCSAF works with TCRA to enforce rural network roaming to increase the efficiency and feasibility of rural connectivity infrastructure, but also to offer competitive service packages and pricing to rural communities.[17] UCSAF is funded by the universal access levy charged on communications licensees, by other government funding, or by grants. Between 2013 and 2019, the fund attracted TZS 120 billion (approx. USD $50 million) to subsidize connectivity infrastructure in underserved areas.[18] By 2021, UCSAF, in collaboration with MNOs, constructed 553 mobile tower sites in rural and urban underserved areas.[19] The fund subsidized 50 percent of the total site deployment cost. By 2022, the fund financed the deployment of communication towers for voice and internet connectivity to 3,292 villages, covering 12.9 million people (about 20 percent of the population).[20]

The ICT Commission, which sits under the Ministry of Information and Communication Information Technology (see Figure 3), is also involved in ICT policy. The Commission was established in 2015 to oversee the non-telecommunications part of ICT policy. Its establishment aimed to fill the gap, as there was no government agency responsible for ensuring implementation of the ICT policy in issues involving digital skills, investments in ICT parks, and tech startups. The commission's mandate is to promote investment in critical digital infrastructure such as data centers; to monitor and promote a capable skilled workforce; and to support the digital startup ecosystem to maximize the digital dividend for the country.[21]

KEY TELECOMMUNICATIONS SECTOR LEGISLATION

The telecommunications sector is regulated by five key pieces of legislation, two of which established the Tanzania Communication Regulatory Authority (TCRA) and the Universal Communication Service and Access

17 "Tanzania rural coverage pilots: performance report." GSMA 2018. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/02/GSMA_Tanzania_Report_Jan.pdf.

18 Nase, John P. 2022. "Digital Tanzania Project." The World Bank. https://projects.worldbank.org/en/projects-operations/document-detail/P160766?type=projects.

19 Ministry of Information and Communication Information Technology. 2021. "STRATEGIC PLAN FOR THE PERIOD OF 2021/22 – 2025/26." Wizara ya Habari, Mawasiliano na Teknolojia ya Habari. https://www.mawasiliano.go.tz/uploads/documents/sw-1625089379-STRATEGIC%20PLAN%20-%20MCIT%202021:22-%202025:26.pdf.

20 Ministry of Information and Communication Information Technology. 2021.

21 ICT COMMISSION. n.d. "ICT promotion." ICTC - Home. Accessed November 29, 2022. https://www.ictc.go.tz/.

Fund (UCSAF). The remaining three pieces of legislation were enacted after the creation of these two institutions to adapt to evolving industry needs and best practices from regional and global markets.

- ***Electronic and Postal Communications Act (EPOCA) 2010[22]:*** This law is considered the primary act regulating ICT and telecommunications. It was built on the TCRA Act 2003 to lay the foundation for modern telecommunications sector regulation. In 2011[23] and then in 2018[24] the regulations associated with EPOCA were updated.
- ***Cybercrimes Act 2015[25]:*** Specific to digital services, the law defines what is considered as cybercrime in Tanzania with provisions for criminalizing offenses related to computer systems and information communication technologies. It also provides guidelines for the investigation, collection, and use of electronic evidence. The Act established the Tanzania Computer Emergency Response Team (TZ-CERT) under the regulator, TCRA (see Pillar 2 for additional details).
- ***Electronic Transactions Act 2015[26]:*** This law supports legal recognition of electronic transactions, e-Government services, and the use of digital technologies in the collection of evidence in legal proceedings. It provides admissibility of electronic evidence and use of secure electronic signatures to facilitate digital transactions.
- ***(pending)* Personal Data Protection Bill 2022:** The Tanzania parliament approved the Personal Data Protection Bill in November 2022. The Bill sets minimum requirements for the collection and processing of personal information. It also establishes a Personal Data Protection Commission and outlines requirements for the protection of personal data processed by public and private bodies. The Bill was sent to the President for signing in November 2022.[27]
- ***(anticipated)* ICT Act 2023:** MICIT reported that the government was in the process of enacting the ICT Act that was expected to come into force in the 2022/23 fiscal year. The act is expected to guide investments, skill development, and deployment of ICT.[28]

1.2 DESPITE MAJOR ADVANCES, INTERNET INFRASTRUCTURE AND MOBILE BROADBAND COVERAGE FALLS BEHIND THE REGION

Three major developments characterized the evolution of Tanzania's connectivity infrastructure over the last 20 years: access to three international submarine cables (it will be four once the 2Africa cable is operational, expected in 2023);[29] construction and expansion of the national fiber backbone that enabled easy data transmission across the country; and a large number of MBOs. Figure 4 provides a general introduction to digital connectivity and various technologies used, including their advantages and disadvantages, some of which will be detailed in this section.

22 The United Republic of Tanzania. 2003. "THE TANZANIA COMMUNICATIONS REGULATORY AUTHORITY ACT, 2003." TCRA. https://tcra.go.tz/uploads/documents/sw-1619083461-Tanzania%20Communications%20Regulatory%20Authority%20Act%20of%202003.pdf.

23 "Enforcement Guideline." TCRA 2012. https://www.tcra.go.tz/uploads/documents/sw-1637735168-en-1626698775-Enforcement%20Guideline.pdf.

24 "Kanuni." TCRA. n.d. Accessed October 25, 2022. https://www.tcra.go.tz/documents/regulations.

25 The United Republic of Tanzania. 2015. "THE CYBERCRIMES ACT, 2015." Tanzania Communications Regulatory Authority. https://www.tcra.go.tz/uploads/documents/en-1619083811-The%20Cybercrimes%20Act,%202015.pdf.

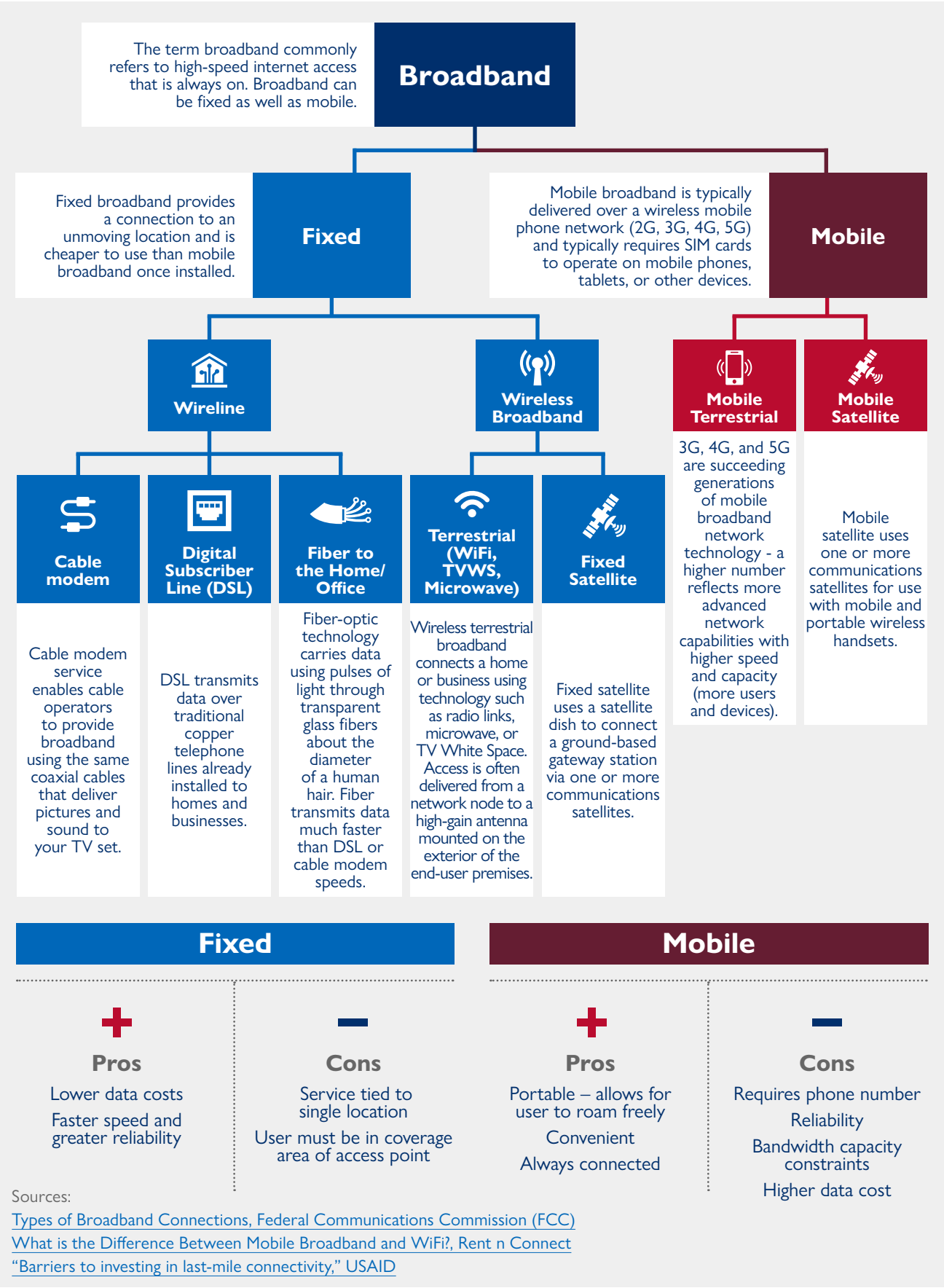
26 The United Republic of Tanzania. 2015. "THE UNITED REPUBLIC OF TANZANIA THE ELECTRONIC TRANSACTIONS ACT, 2015." Mamlaka ya Serikali Mtandao. https://www.tcra.go.tz/uploads/documents/en-1619083875-The%20Electronic%20Transactions%20Act,%202015.pdf.

27 Tanzania: Parliament passes Personal Information Protection Bill. Data Guidance. November 15, 2022. https://www.dataguidance.com/news/tanzania-parliament-passes-personal-information

28 Government Ministry. Interview with DECA Team, June 2022.

29 Submarine Cable Map. Dar es Salaam, Tanzania. Telegeography. https://www.submarinecablemap.com/landing-point/dar-es-salaam-tanzania

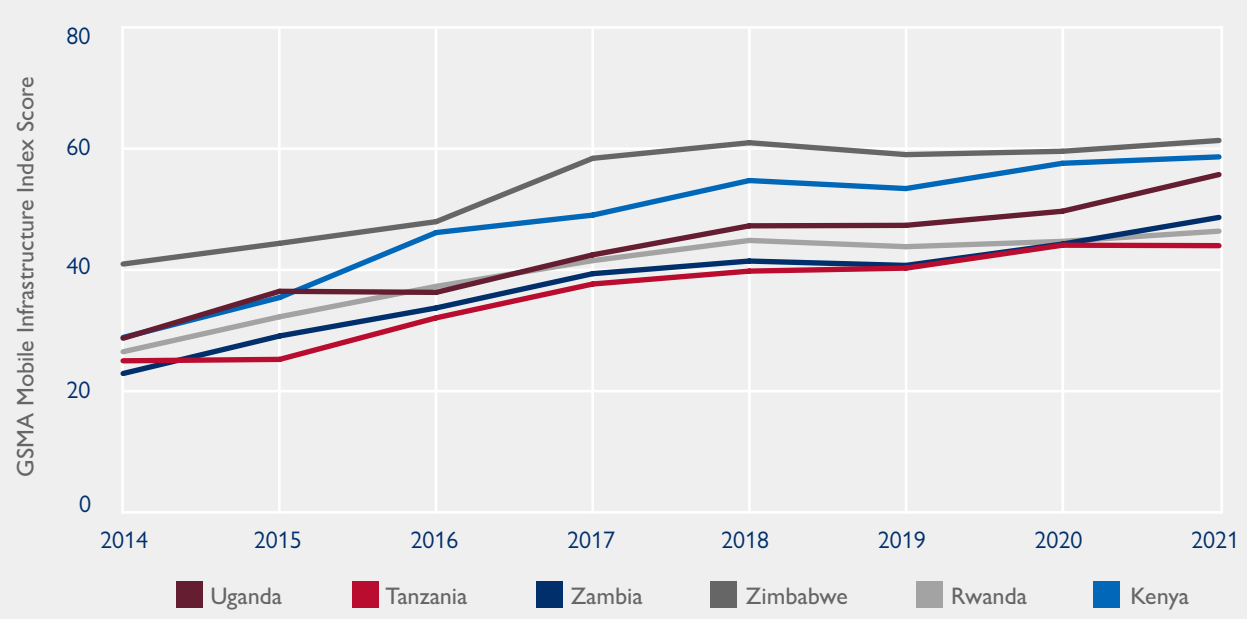
FIGURE 4: A quick introduction to digital connectivity



Sources:
Types of Broadband Connections, Federal Communications Commission (FCC)
What is the Difference Between Mobile Broadband and WiFi?, Rent n Connect
"Barriers to investing in last-mile connectivity," USAID

When it comes to quality mobile internet access, according to the GSMA Mobile Connectivity Index (see Figure 5 below),[30] Tanzania scored 36.4 out of 100 points in mobile infrastructure, which measures the availability of high-performance mobile internet infrastructure. Mobile internet infrastructure consists of network coverage, performance, network-enabling infrastructure such as power, and spectrum. Tanzania's score trails all of its regional counterparts, as well as the average performance of Sub-Saharan Africa (39.4).

FIGURE 5: GSMA Connectivity Index: Mobile Infrastructure



Source: GSMA Mobile Connectivity Index

In terms of understanding internet quality, the Global Speedtest Index measures average mobile and fixed broadband download speeds. Table 1 below shows October 2022 data for Tanzania and its regional counterparts.

TABLE 1: Global Speedtest Index measures for mobile and fixed broadband download speeds[31]

	MOBILE BROADBAND DOWNLOAD SPEED		FIXED BROADBAND DOWNLOAD SPEED	
	RANKING	SPEED	RANKING	SPEED
KENYA	97/141	20.31 Mbps	155/180	9.30 Mbps
UGANDA	83/141	22.71	149/180	10.19 Mbps
TANZANIA	124/141	13.53 Mbps	140/180	12.3 Mbps
RWANDA	N/A	N/A	153/180	9.62 Mbps

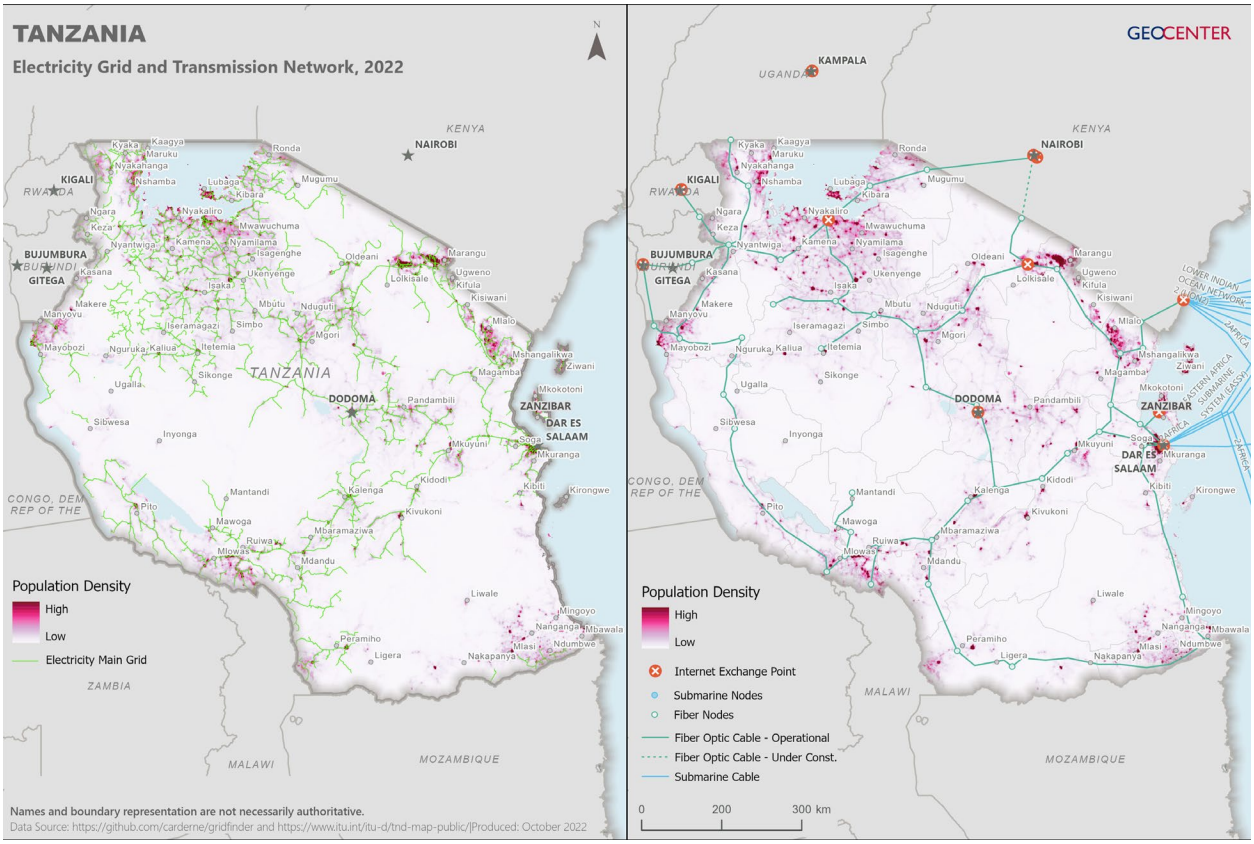
30 GSMA Mobile Connectivity Index. Tanzania Detail and Analysis. Index Score 2019. https://www.mobileconnectivityindex.com/#year=2019&zoneIsocode=TZA&analysisView=TZA&comparison=0 ("Mobile Connectivity Index", n.d.)

31 "Speedtest Global Index – Internet Speed around the world – Speedtest Global Index." Speedtest Global Index. OOKLA. n.d. Accessed October 25, 2022. https://www.speedtest.net/global-index

GOVERNMENT LEADS IN BUILDING THE NATIONAL FIBER BACKBONE

The GoT leads the way with fiber network deployment. The current National ICT Broadband Backbone (NICTBB) extends to about 8,310 kms.[32] The network follows an open architecture. TTCL, Airtel, Axian (Tigo), Simbanet, and Vodacom are connected to NICTBB.[33] The backbone includes nine connecting points to neighboring countries at Sirari, Namanga, and Horohoro (Kenya); Mutukula (Uganda), Rusumo (Rwanda), Kabanga and Manyovu (Burundi), Kasumulu (Malawi), Tunduma (Zambia), and Mtambaswala (Mozambique). The current expansion of NICTBB leverages the physical presence of the national power company (TANESCO) through a contract between the power utility company and MICIT. Without sharing infrastructure with TANESCO, the government would only have been able to construct an additional 1,880 km.[34] Despite a motivated government, the rollout of the NICTBB expansion project has been slow; the first phase began 10 years ago. See Figure 6 for a map showing the fiber infrastructure and the electricity grid.

FIGURE 6: Tanzania Network Transmission and Mobile Coverage Map vs. Electrification Map



32 "Broadband Map Visualization portal." Map. International Telecommunications Union. n.d. Accessed October 25, 2022. https://www.itu.int/itu-d/tnd-map-public/.

33 Pazi, S. M., and C. R. Chatwin. 2013. "Accessing the Economic Benefits and Challenges of Tanzania's National ICT Broadband Backbone (NICTBB)." International Journal of Information and Computer Science 2, No. 7 (November): 117 - 126. https://issuu.com/sep2011--now/docs/117-126_ijics9773.

34 "HOTUBA YA WAZIRI WA HABARI, MAWASILIANO NA TEKNOLOJIA YA HABARI MHESHIMIWA NAPE MOSES NNAUYE (MB.), AKIWASILISHA BUNGENI MAKADIR." Ministry of Information and Communication and Information Technology. 2022. Speech of the Minister for Information and Communication and Information Technology. https://www.mawasiliano.go.tz/uploads/documents/sw-1653060914-Hotuba%20ya%20Wizara%20ya%20Habari.pdf.

"We give them [MNOs] licenses where they can build infrastructure. The most important thing is that they should invest wisely. One way of investing wisely is sharing infrastructure. Deployment of fiber consumes a lot of resources. You need infrastructure, but the payback is not easy. "

—Dr. Emmanuel Manase, TCRA.

In 2023, the government plans to extend the fiber backbone network by 4,442 km in collaboration with the power utility company, Tanzania Electric Supply Company (TANESCO). Unlike the initial part of the backbone, which was financed by the People's Republic of China (PRC) through the Exim Bank of China,[35] the current expansion of the backbone is financed by the World Bank's Digital Tanzania Project,[36] a five-year project (2021-2026) implemented by the GoT and funded by the World Bank through a USD $150 million credit facility. The project aims to increase access to high-quality internet services for the government and citizens and to improve government capacity to deliver digital services and promote the digital economy in Tanzania. The project has four components: digital ecosystem improvement, digital connectivity, digital platforms and services, and project management.[37]

In addition to government deployment of the fiber backbone, the private sector is allowed to deploy fiber networks. For example, the MICIT reported that Viettel Tanzania PLC (Halotel) is required to provide fiber coverage to every district in the country and other telecommunications companies have deployed fiber in various segments, individually or as a consortium.[38] It was difficult to get data on the exact level of private sector-led fiber deployment as that data is not in the public domain. Discussions with MICIT and TCRA revealed that government strategy is to champion fiber backbone deployment.

"...the core infrastructure [NICTBB] is built by the government by constructing the [fiber] backbone, [to] make sure it reaches all districts, connects all of Tanzania, and connects to bordering countries. We are promoting that service providers can use the [NICTBB] services. They can use the backbone infrastructure to make sure the communication services are provided to telecommunications towers and to businesses and facilities."

—Mr. Mulembwa Munaku, MICIT

According to a World Bank expert, despite these efforts Tanzania has low installed fiber capacity per capita compared to other African countries and the current government strategy needs to be revised.[39] It is unclear whether firms have a choice when it comes to backhauling (transmitting) traffic through the NICTBB. If firms do have a choice, this would enable competition and enhance pricing, quality of service, and efficiency.

35 "Tanzania page." Chinese Loans to Africa Database. Global Development Policy Center. n.d. Accessed November 29, 2022. https://www.bu.edu/gdp/chinese-loans-to-africa-database/.

36 Nase, John P. 2022. "Digital Tanzania Project." The World Bank. https://projects.worldbank.org/en/projects-operations/document-detail/P160766?type=projects.

37 Nase, John P. 2022. "Digital Tanzania Project." The World Bank. https://projects.worldbank.org/en/projects-operations/document-detail/P160766?type=projects.

38 The requirement for Halotel to provide fiber to every district whereas other companies have a more limited scope is a result of licensing negotiations between Halotel and TCRA. Halotal was the last market entrant (in 2016) into an already competitive market. TCRA maintains its goal of increasing rural connectivity.

39 World Bank. Interview with DECA Team, June 2022.

BOX 1: Right of way costs discourage private investment in fiber backbone, but there appears to be resistance to change

The government charges fiber infrastructure firms USD $1,000 per km for the right of way. The Tanzania Internet Service Providers Association (TISPA) and Internet Society (ISOC) Tanzania leadership reported that the fees are too high and impede deployment of fiber. TISPA further reported that they were in talks with the government as they had benchmarked right of way fees in regional markets and were asking the government to review Tanzania's fees. The government has not waived fees. Fees are charged by TARURA, the agency for rural roads, under the Ministry of Works and Transport (see Figure 3). This agency is crucial because it maintains rural roads where fiber is installed, thus charging Right of Way fees.[40]

DATA CENTERS WITHIN THE DIGITAL INFRASTRUCTURE ECOSYSTEM

The GoT invested in the National Internet Data Center (NIDC), which is managed by the state-owned telecommunications company, Tanzania Telecommunications Corporation (TTCL). NIDC is a tier-3[41] data center connected with an upgraded Multiprotocol Label Switching (MPLS) National backbone with the support of SEACOM and the Eastern African Submarine Cable System (EASSy) international submarine cables.[42] Tanzania does not have general regulation on data localization. However, the banking industry has its own data localization regulations. The Central Bank of Tanzania (BoT) has issued three circulars since 2014 that require all banks' primary and secondary data centers to be located within the country.[43] In 2019, the BOT fined the National Bank of Commerce (NBC) and the Diamond Trust Bank (DTB) each TZS 1 billion Tanzanian Shilling (approx. USD $435,000) for failure to comply with data localization requirements.

TCRA pointed out that although the country has a government data center, it also encourages investments in private data centers. Most MNOs have their own data centers. Vodacom and Liquid Technologies invested in data centers that market cloud services to Tanzanian enterprises. Similarly, other investors, such as Raxio, announced their plans to invest in the Tanzania data center market, which will be the first carrier-neutral data center.[44] TCRA acknowledged that there are no guidelines or regulations to support the development and management of data centers in the country.[45]

PRC TECHNOLOGY PLAYS AN INFLUENTIAL ROLE IN TANZANIA'S CONNECTIVITY INFRASTRUCTURE

PRC-based firms, particularly ZTE and Huawei, are highly visible in Tanzania's telecommunications sector. According to Vodacom, PRC-based companies have a large share in connectivity infrastructure and device technology. For example, the 8,319 km NICTBB fiber network[46] and the 18,000 km Viettel fiber network were

40 MICIT. Interview with DECA Team, June 2022.

41 Tier 3 is a data center with multiple paths for power and cooling, and redundant systems that allow the staff to work on the setup without taking it offline. This tier has an expected uptime of 99.982% (1.6 hours of downtime) per year. This is in contrast to a Tier 2 data center that has a single path for power and has an expected uptime of 99.741% (22 hours) annually. A Tier 4 data center is the highest tier and is built to be fault-tolerant with a redundancy for every part. It has an expected uptime of 99.995% (26.3 minutes of downtime annually). https://www.hpe.com/us/en/what-is/data-center-tiers.html

42 "Overview." NIDC - SECURED & PROTECTED HORIZON. NIDC. n.d. Accessed November 29, 2022. https://nidc.co.tz/.

43 "Tanzania's National Bank of Commerce hit with fine over data rules breach." The East African, August 29, 2019. https://www.theeastafrican.co.ke/tea/business/tanzania-s-national-bank-of-commerce-hit-with-fine-over-data-rules-breach-1425984.

44 Butler, Georgia. 2022. "Raxio invests in building Tanzania data center." Data Center Dynamics, March 23, 2022. https://www.datacenterdynamics.com/en/news/raxio-invests-in-building-tanzania-data-center/.

45 Government entity. Interview with DECA Team, June 2022.

46 "HOTUBA YA WAZIRI WA HABARI, MAWASILIANO NA TEKNOLOJIA YA HABARI MHESHIMIWA NAPE MOSES NNAUYE (MB.), AKIWASILISHA BUNGENI MAKADIR." Ministry of Information and Communication and Information Technology. 2022. Speech of the Minister for Information and Communication and Information Technology. https://www.mawasiliano.go.tz/uploads/documents/sw-1653060914-Hotuba%20ya%20Wizara%20ya%20Habari.pdf.

built using PRC technology and firms, namely Huawei and China International Telecommunication Construction Corporation (CITCC), a subsidiary of the China Telecom Group.[47] In addition to fiber cables and accessories being from PRC-based firms, telecommunication companies in Tanzania also procure network access devices such as data routers and switches from PRC-based firms, mainly from Huawei and ZTE.[48] The local fiber manufacturer, Raddy Fiber Manufacturing, pointed out that their plant (the entire factory) was imported from the PRC, and they buy fiber raw materials from the PRC.[49]

Pricing was the main driver reported by firms shifting their procurement to PRC-based firms. When asked about security concerns, MNOs reported that it was difficult to ensure the security of data transmitted through devices sourced from the PRC as they often come with embedded software that is not accessible to the local experts due to the language barrier, as some instructions are in Mandarin Chinese. One MNO notes that it is difficult to hire local engineers sufficiently capable of managing devices from PRC-based companies. The interviewee pointed out that their PRC-based vendors have a local presence in Tanzania as well as seconded Chinese engineers stationed on their premises. This arrangement is designed to ensure the devices function properly.[50] When it comes to device security, the interviewee noted that they relied on clearance procedures set by the parent company to assess security of all of its infrastructure equipment prior to installation in their network.[51]

Ericsson is still operating in the Tanzania telecom market because its technology was used for the legacy 2G and some 3G infrastructure. However, it competes with Huawei for MNOs to partner with in rolling out 5G infrastructure.

BOX 2: Government partnering with PRC on digital infrastructure

The GoT is partially open in its dealings with the PRC in procurement of digital infrastructure; it issues press releases with project objectives and value. However, detailed terms and conditions are not made public. In 2022, the GoT and the PRC signed a deal for the PRC to support Tanzania in 5G deployment.[52] Although companies will have to choose which suppliers to procure technology from when implementing 5G technology, it is not clear what kind of incentives the government will extend to PRC-based firms.

COMPETITION IN THE TELECOM MARKET

Analysis of competition in the telecommunications market is dictated by the licensing regime for various market segments. In 2005, the regulator, TCRA, adopted a converged licensing framework (CLF), which promoted technology neutrality. CLF allows operators to offer multiple services using any technology without the requirement to apply for a new technology or service-specific license. When CLF was introduced in Tanzania, it was the first of this type of licensing framework in sub-Saharan Africa.[53] The CLF in Tanzania includes four licensing categories: network facilities providers that construct physical connectivity infrastructure; network service providers that offer mobile, fixed-line, bandwidth, and broadcasting services; application service providers that offer digital communication services; and content service providers that offer digital communication services

47 "China-powered ICT Infrastructure: Lessons from Tanzania and Cambodia - SAIIA." The South African Institute of International Affairs, December 15, 2021. https://saiia.org.za/research/china-powered-ict-infrastructure-lessons-from-tanzania-and-cambodia/.

48 "China-powered ICT Infrastructure: Lessons from Tanzania and Cambodia - SAIIA." The South African Institute of International Affairs, December 15, 2021. https://saiia.org.za/research/china-powered-ict-infrastructure-lessons-from-tanzania-and-cambodia/.

49 Private sector telecommunications actor. Interview with DECA Team, June 2022.

50 MNO. Interview with DECA Team, June 2022.

51 MNO. Interview with DECA Team, June 2022.

52 Mosenda, Jacob. 2022. "China to support Tanzania 5G technology for digital economy drive." The Citizen, June 15, 2022. https://www.thecitizen.co.tz/tanzania/news/national/china-to-support-tanzania-5g-technology-for-digital-economy-drive-3849590.

53 "Simplifying network licensing." Alliance for Affordable Internet. A4AI. July 29, 2020. https://a4ai.org/research/good-practices/simplifying-network-licensing/

through a broadcasting medium like TV or radio. The CLF also enables third-party operators to use the licensed network facilities of other providers. Before the CLF, third-party providers were required to use TTCL's facilities. According to A4AI, the CLF was the last step in the liberalization of the telecommunication market and triggered rapid, competition-driven change, including in internet affordability.[54]

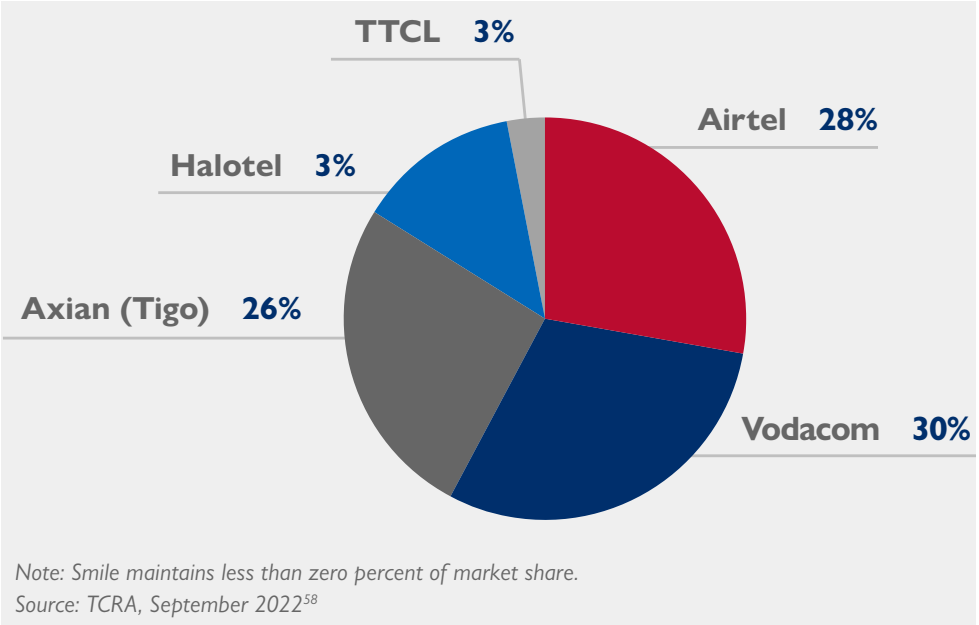
Telecom towers market segment

Tanzania's mobile market has evolved greatly over time. MNOs delegate tower infrastructure management and construction to tower management companies. This is an important feature in the health of the telecom market and is a result of the regulator's infrastructure sharing policy and related market competition forces. Vodacom and Tigo (currently Axian) sold their tower assets to Helios Towers in 2013 and 2010 respectively. In 2021, Airtel's telecom tower assets were sold to a joint venture by a subsidiary of SBA Communications and Paradigm Infrastructure Limited.[55] Viettel (Halotel), which owns and operates its own telecom tower assets, is unique to this trend for operators with more than five percent market share.

Mobile market segment

Most of the market is split between four major operators: Vodacom, Airtel, Halotel, and Axian (Tigo). There are two other much smaller operators (Figure 7).[56] Interviewees from Vodacom pointed out that due to the large number of MNOs, challenges in availability of spectrum affect each MNO's ability to easily provide their services. Local roaming services are allowed under commercial arrangements between telcos. There is no spectrum trading regulation to ease the operators' challenges with spectrum access.[57]

FIGURE 7: MNO Market Share



Note: Smile maintains less than zero percent of market share.
Source: TCRA, September 2022[58]

54 "Simplifying network licensing. "Alliance for Affordable Internet. A4AI. July 29, 2020. https://a4ai.org/research/good-practices/simplifying-network-licensing/

55 Mirondo, Rosemary. 2021. "Why telecom companies now selling their towers." The Citizen, June 4, 2021. https://www.thecitizen.co.tz/tanzania/news/national/why-telecom-companies-now-selling-their-towers-3425198.

56 "QUARTERLY COMMUNICATIONS STATISTICS." TCRA 2022. https://www.tcra.go.tz/uploads/text-editor/files/TelCom%20Statistics%20Sept%202021_1637908799.pdf.

57 Vodacom. Interview with DECA Team, July 2022.

58 "Communication Statistics: A Report for a Quarter Ending September 2022." Tanzania Communication Regulatory Authority. (TCRA) https://www.tcra.go.tz/uploads/text-editor/files/1st%20Quarter%20Statisctics%20Report%20for%202022-REVISED%20FINAL%201.11.2022_1667386587.pdf

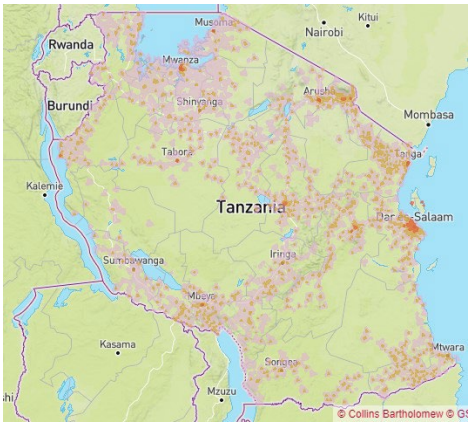
Mobile broadband coverage

MICIT stated that population coverage of 3G and 4G mobile broadband is 68 percent and 45 percent, respectively.[59] However, it should be noted that GSMA reported 83 percent 3G and 55 percent 4G coverage in 2021.[60] GSMA mobile broadband coverage maps (see Figure 8) for the three leading operators by market share (Vodacom, Aritel, and Tigo) show mobile broadband coverage mostly in large and medium cities. The country has large areas under game reserve where there is no human population, and mobile broadband coverage is concentrated in areas with human population (see also Figure 9). For comparison to the neighboring countries, see Table 2 below, which shows that Tanzania is considerably behind all of its regional counterparts in terms of 3G and 4G coverage.

TABLE 2: Mobile Broadband Coverage Comparisons, percent of the population covered, 2021[61]

	3G COVERAGE	4G COVERAGE
RWANDA	98%	99%
KENYA	97.9%	96.3%
UGANDA	90.5%	62%
TANZANIA	83%	55%

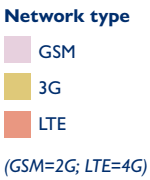
FIGURE 8: Mobile broadband coverage



Tigo

Vodacom

Airtel



59 Government Ministry. Interview with DECA Team, June 2022.

60 GSMA Mobile Connectivity Index. Tanzania Index Score 2021. https://www.mobileconnectivityindex.com/#year=2021&zoneIsocode=TZA&analysisView=TZA

61 GSMA Mobile Connectivity Index. https://www.mobileconnectivityindex.com/

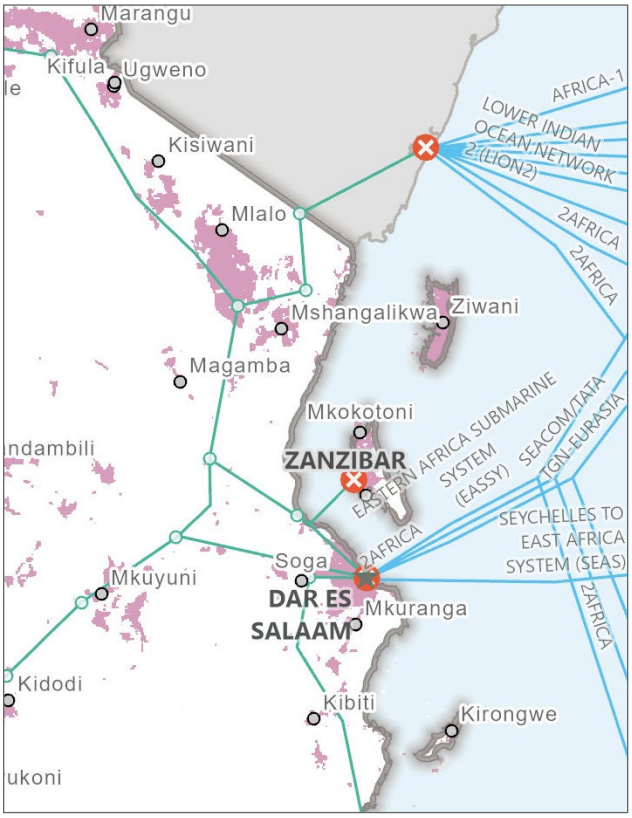
FIGURE 9: Tanzania transmission network map and population density

Access to international connectivity

Tanzania's geographical location bordering the Indian Ocean on the east coast of Africa benefits internet connectivity. Tanzania is connected to four undersea fiber cables, three of which are operational: Seychelles to East Africa System (SEAS); SEACOM; and EASSy; and the Facebook-led 2Africa cable expected to be operational in 2023 (see Figure 6).[62] These cables are connected to Tanzania at Dar es Salaam and provide a gateway to the country as well as to other landlocked countries bordering Tanzania. Tanzania benefits from providing submarine cable access to its landlocked neighbors by charging transmission service fees between the shore landing point and the landlocked country.

62 "Submarine Cable Map." Map. TeleGeography. n.d. Accessed November 29, 2022. https://www.submarinecablemap.com/landing-point/dar-es-salaam-tanzania.

FIGURE 10: Tanzania undersea fiber cable connections



Internet Exchange Points (IXPs) as critical infrastructure

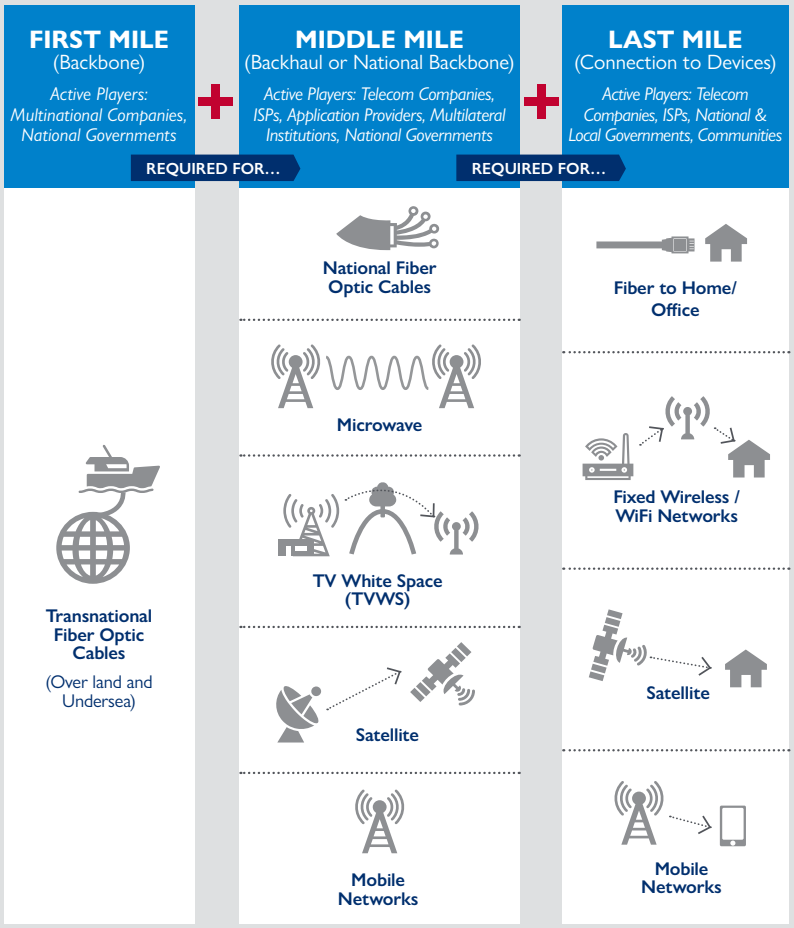
There are six IXPs in Tanzania, located in Dar es Salaam, Mwanza, Arusha, Dodoma, Mbeya, and Zanzibar. TCRA noted that IXPs are crucial for the promotion of local content, and it has provided funds for the improvement of local IXPs.[63] Until 2019, IXPs were housed within the premises of TISPA members in various locations. However, the government decided to change its policy to encourage and enforce all IXPs to be housed within the government-owned telecommunication company, TTCL. TISPA discouraged this move, pointing out that its members face bureaucratic procedures when trying to peer their traffic to various IXPs in the country, and their peering traffic is charged as commercial traffic. Despite the TISPA initiative, the government continues with its arrangement to host IXP infrastructure within TTCL, defeating the objective of using IXPs as an enabler for local content (see more in Pillar 2).

LAST-MILE CONNECTIVITY IS A CHALLENGE

Last-mile connectivity is a pressing challenge in Tanzania. Figure 11 provides a general overview of the connectivity chain from the first mile, middle mile, and the last mile within the context of ensuring that the entire population is reached with at least mobile broadband connectivity.

63 Government entity. Interview with DECA Team, June 2022.

FIGURE 11: Building a network



* *Many combinations of middle and last mile technologies are used in networks. For example, fiber or satellite can be used to backhaul last mile fixed wireless networks.*

CONSIDERATIONS FOR RURAL CONNECTIVITY:

Fiber to Home/Office
COST: High fixed costs, low variable costs
DETAILS: Laying fiber to remote, sparsely populated areas can be logistically and financially challenging

TVWS
COST: Moderate fixed costs, moderate variable costs
DETAILS: equipment is more specialized and expensive than WiFi, but can transmit signal around obstacles and across greater distances

Microwave
COST: Low fixed costs, low variable costs
DETAILS: easy and less expensive than fiber to deploy, but requires line-of-sight between radios and there may be licensing restraints

Fixed Wireless / WiFi Networks
COST: Variable fixed costs, low variable costs
DETAILS: relatively easy and inexpensive to set up, but may require line-of-sight between antennas and original backhaul connection, depending on technology used

Satellite
COST: High fixed costs, high variable costs
DETAILS: Using satellite receivers in a remote community can be easy, but service can be expensive

Mobile Networks
COST: Moderate fixed costs, moderate variable costs
DETAILS: deploying equipment in rural areas can be prohibitively expensive, but accessing unused licensed spectrum for community networks may be possible to lower costs

Market forces have not been able to bridge the gaps in last-mile connectivity, despite reasonable competition among MNOs. Therefore, last-mile connectivity is mostly dealt with by UCSAF, which subsidizes MNOs to deploy infrastructure in harder to reach, less profitable areas. UCSAF usually invites MNOs to compete for funds to deploy network infrastructure in UCSAF priority areas. UCSAF efforts are complemented by noncommercial organizations for example community networks such as the Kondoa Community Network (see box 3). Those solutions are small-scale and telecommunications companies are the de facto stakeholders responsible for closing the last-mile connectivity gap with support from UCSAF. There is an absence of policies to guide and stimulate unconventional, innovative solutions such as the use of TV White Space (TVWS) for community networks. A World Bank expert reported that despite UCSAF's efforts subsidizing telecommunications companies to provide last-mile connectivity,[64] more could be achieved by incorporating reverse auction techniques[65] to get better value for money, open the space to non-traditional telcos, and explore alternative technologies.

64 International organization. Interview with DECA Team, June 2022.

65 Reverse auction is the method of procurement where the procuring entity provides specification of the goods or services it requires, potential suppliers bid, and the procuring entity selects the complying supplier with the lowest price (but may include other supportive criteria).

BOX 3: Kondoa Community Network: the case for enabling TVWS

Kondoa Community Network was established in rural Tanzania to extend connectivity services using TVWS. The regulator provided a two-year research license from 2017 to 2019 to the network founder, Dr. Jabera Matogoro when he was conducting his Ph.D. research. The study concluded that the TV white-space technology has potential to close the last-mile connectivity gap.

Kondoa Community Network TVWS receiver.

The Kondoa Community Network was owned and supported by the community of users, a women's cooperative group, which worked with Dr. Matogoro to ensure sustainability of the network. The Kondoa Community Network extended its activities to provide network access to the students of Kondoa Girls' High School.

The research license ended in 2019 and therefore the internet services through the community network was halted. The women's cooperative continued with other activities even after the network closed. The women in the cooperative were frustrated by the regulator's decision to terminate the license and called for more dialogue to reinstate the service.

BOX 4: World Mobile: a pilot-phase innovative approach to connecting the unconnected

World Mobile is a global telecommunications company with the goal of connecting the unconnected. It is headquartered in the UK with operations in the UK and Zanzibar. World Mobile employs a cooperation model in which they share resources with individuals or organizations, deploying balloons that serve as points of connectivity, referred to as an AirNode. Each AirNode has a local partner that manages that AirNode on the ground. The partner, also known as the AN operator, shares network revenue with the company, and is responsible for managing, providing security, and recruiting users for the network.

World Mobile partners with a local network provider to use existing fiber optic cables to reach within 65 km of an unconnected village. They tap into unlicensed spectrum to connect to tethered aerostat balloons powered by solar panels and inflated by helium to act as floating cellular base stations transmitting radio signals to AirNode balloons to create a mesh network that reaches the village. The business model is built around a shared economy concept and blockchain technology which tracks users and transactions. Local community members own and operate the AirNode and then earn rewards for all calls, texts, and data that run through the node. AirNodes are the access layer of the World Mobile networks. They replace the traditional last-mile access that MNOs would provide. Instead of a large telecom tower, AirNodes are hybrid mesh devices that can be run by anyone who wants to provide connectivity in a village.[66] Unlike Google Loon, the balloons are tethered by a rope to the ground to ensure that they are not carried away by wind. The company reports that their innovation has reduced capital expenditures in a 1 to 12 ratio; for every 1 dollar spent by World Mobile, a traditional telecommunications company would spend 12 dollars to achieve the same impact.

World Mobile started piloting its infrastructure in rural Zanzibar in late 2021.[67] Their services are currently provided for free, but they plan to commercialize in early 2023. Ultimately, the company plans to extend its services to Tanzania mainland. It also has operations in the UK, and plans to pilot in South Africa, Kenya, and Mozambique following successful results of the ongoing pilot in Zanzibar.

66 "What's an AirNode?" World Mobile. 2022.. https://worldmobile.io/blog/post/what-is-an-airnode/.

67 "World Mobile launches balloon-driven hybrid mobile network in Zanzibar | Times Aerospace." Times Aerospace. December 1, 2021. https://www.timesaerospace.aero/news/technology/world-mobile-launches-balloon-driven-hybrid-mobile-network-in-zanzibar.

Gaps in last-mile connectivity impede development solutions from reaching their fullest impact. The PO-RALG Director of ICT noted that while they developed information systems for uptake by primary healthcare facilities and schools, sustainability and scale are challenged because those rural facilities do not have access to the internet.[68] Similarly, Cambridge Education,[69] facilitates data-driven decision-making and improved efficiencies in schools.[70] However, the organization emphasized that connectivity gaps are the main hindrance to scaling up their intervention.

1.3 DIGITAL DIVIDES PERSIST ACROSS VARIOUS DIMENSIONS

KEY TERMS | BOX 3: The digital divide explained

The digital divide denotes the distinction between those who have access and can use digital products and services and those who are excluded from these products and services. Overlapping digital divides often stem from inequities in literacy, cost, social norms, or availability of relevant content. Digital divides may be associated with gender, economic status, geography, and age, among other factors.

Meaningful access to the internet is a key component for full participation in modern societies. Structural and social barriers make it difficult for some groups to easily gain access to and meaningfully participate in the digital space. This phenomenon creates digital divides. Proper understanding of existing digital divides allows development stakeholders such as the government, development partners, and the private sector to design interventions to bridge the digital divides.

STARK URBAN/RURAL DIGITAL DIVIDE

Although at lower rates than its neighbors Kenya (72 percent), Uganda (74 percent), and Rwanda (82 percent), 65 percent of Tanzania's population resides in rural areas as of 2021.[71] In May 2021, the urban rural connectivity gap was wide. Only 14 percent in rural areas had access to the internet compared to about 55 percent of the population in urban areas.[72] Tanzania is not unique in its rural-urban connectivity gap. ITU reports that in 2020, 15 percent of Africa's rural population were using the internet compared to 50 percent in urban areas.[73] There are two key challenges to extending connectivity to rural Tanzania: topographical challenges and sparse population, which together make it costly and unfeasible to deploy digital infrastructure profitably. There are also challenges beyond connectivity. For example, TCRA and MICIT pointed to high device costs (see Table 3) as a key driver of the usage gap. This is especially acute for lower income people living in rural areas.

GENDER DIGITAL DIVIDE

According to the 2019 GSMA Mobile Gender Gap report, 77 percent of women in Tanzania had access to mobile phones, compared to 86 percent of men. Almost twice as many men had mobile internet access at 35

68 Government Ministry. Interview with DECA Team, June 2022.

69 Cambridge Education is a nongovernmental organization carrying out the Programme for Results project with funding from the World Bank, the UK Foreign Commonwealth and Development Office (FCDO), and the Government of Sweden (SIDA). https://www.camb-ed.com/intdev/article/514/education-programme-for-results

70 International development partner. Interview with DECA Team, June 2022.

71 Nase, John P. "https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=TZ-KE-UG-RW." The World Bank. https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=TZ-KE-UG-RW.

72 Malakata, Michael. "Tanzania relies on UCSAF, policy to chase down connectivity target." ITWeb Africa. https://itweb.africa/content/mYZRXv9a6eKvOgA8.

73 "Internet use in urban and rural areas: Percentage of individuals using the Internet by location, 2020." International Telecommunication Union. (ITU) https://www.itu.int/itu-d/reports/statistics/2021/11/15/internet-use-in-urban-and-rural-areas/

percent of men compared to 17 percent of women.[74] Rlabs, a non-government organization (NGO) working in Tanzania to equip disadvantaged youth with entrepreneurial and socio-emotional skills, noted that women experienced lower digital literacy and had the largest dropout in their programs due to household responsibilities. The gender digital divide is caused by many factors including such sociocultural factors. Other factors include inadequate presence of gender-specific digital applications and content, accessibility (independent ownership), and affordability of devices and data charges.[75]

While the gender digital divide is a serious issue, there are institutional barriers to tackling the gender digital divide. Mobile and internet adoption data published by TCRA are not disaggregated by gender or age. It is therefore difficult to identify, track, and design specific initiatives to counter the gender digital divide. While the current ICT policy (2016) commits the GoT to ensure equitable participation of gender and social diversity groups in developments and use of ICT, there are no specific objectives outlined in the implementation strategy to show how to minimize the gender digital divide.[76]

LANGUAGE-INDUCED DIGITAL DIVIDE

Kiswahili (Swahili) is the most widely spoken language in Tanzania. However, most digital content available on the internet is in English. While there is no latest official data, available estimates are that only 10 percent of Tanzanians speak English.[77] Therefore, digital content is not accessible to most citizens. This is especially true for rural populations.

Rlabs reported that most training materials available from the internet are not in Swahili. Rlabs is part of a network of branches located in various developing countries and headquartered in South Africa. While the organization develops some content locally, in an interview, they shared the need to translate all training materials into Swahili to effectively serve their targeted youth and women.[78]

ACCESSIBILITY BASED DIVIDE

Accessibility of digital content, especially websites, plays an important role in service delivery. Several accessibility standards such as the Web Content Accessibility Guidelines (WCAG), which provide best practices to develop accessible digital products including websites with embedded assistive technologies. However, when asked about regulations and policies around accessible online content, TCRA only pointed to the fact that they have sign language interpreters for TV news. When online content, especially digital government services do not offer accessibility features, those who are physically challenged are excluded. See more on accessible digital government services and how eGA is approaching this in Pillar 2.

74 "Adolescent girls and young women in Tanzania expand digital literacy and skills." UNESCO blog, April 21, 2022. https://en.unesco.org/news/adolescent-girls-and-young-women-tanzania-expand-digital-literacy-and-skills.

75 Ndosi, Carol. "Part 2 — Bridging the Gender Digital Divide in Tanzania." November 18, 2021. https://carolndosi.medium.com/part-2-bridging-the-gender-digital-divide-in-tanzania-807326a3ae63.

76 Ndosi, Carol. "Tanzania: Striving for women digital inclusion." East Site - Media Innovation Network. 2021.https://mediainnovationnetwork.org/2021/11/18/tanzania-striving-for-women-digital-inclusion/.

77 "List of Countries by English-speaking population." Wikipedia. https://en.wikipedia.org/wiki/List_of_countries_by_English-speaking_population

78 Civil society organization. Interview with DECA Team, June 2022.

BOX 5: Spotlight on advocacy for digital accessibility

Tusaidiane Disabilities Resources and Charity Organization (TDRCT) serves people with various physical disabilities who have organized themselves to help others with disabilities. The organization advocates for and raises awareness of rights, including digital rights, for people with disabilities.

A spokesperson for the group appreciated the digitalization of various government services. They reported that purchasing power credit was very difficult before the service moved online and allowed mobile payments. Traveling to make payments in person was burdensome and costly as Tanzanians with disabilities had to ask for and pay for an escort to the power utility company shop to buy power credit. Now they can do it using their mobile phones, saving money and time. Even when they need support from another person to navigate the platform, it only takes a few minutes.

TDRCT advocates for the inclusion of accessibility features on all websites, starting with government websites, noting that most government websites do not offer accessibility features. The MICIT reported that there are no regulations requiring institutions to include accessibility features on digital media platforms.

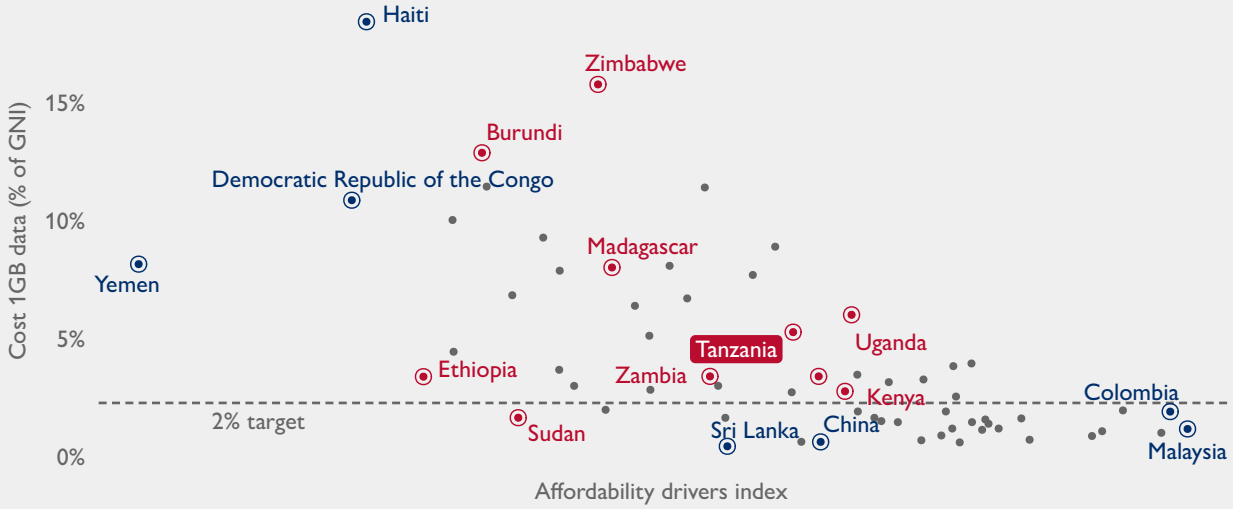
1.4. AFFORDABILITY, LOW DIGITAL LITERACY, AND LACK OF LOCALLY RELEVANT CONTENT HINDER ADOPTION AND USE

AFFORDABILITY OF MOBILE BROADBAND

BOX 6: When does data become affordable?

The Alliance for Affordable Internet (A4AI) defines mobile broadband as affordable if 1 GB of mobile broadband data is priced at two percent or less of average monthly income–or Gross National Income (GNI).[79] As shown in the figure below, mobile broadband is relatively affordable in Tanzania, however, it is still above the two percent threshold at 4.9 percent.[80] This closely mirrors the African continent average of 5.1 percent of GNIpc for 1GB of data.[81] Tanzania is about in line with its neighbors, Kenya, Uganda, and Rwanda, if not faring slightly better.

FIGURE 12: Comparison of 2021 ADI Scores vs. Latest Affordability (2021)



Source: Alliance for Affordable Internet, 2021

79 A4AI. 2021. "Affordable Internet is "1 for 2."" Alliance for Affordable Internet. https://a4ai.org/affordable-internet-is-1-for-2/.

80 Mobile Broadband Pricing Data for 2021." Alliance for Affordable Internet. (A4AI) https://adi.a4ai.org/extra/baskets/A4AI/2021/mobile_broadband_pricing_gni.php

81 Digital Development Dashboard: An overview of the state of digital development around the world." International Telecommunication Union. (ITU) GNIpc for 1GB of data ITU regional averages. https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx

DEVICE AFFORDABILITY

TCRA and the MICIT cited device prices as the main barrier to increased adoption of the internet. According to MICIT, only 28 percent of the population has access to smartphones, the main device Tanzanians use to access the internet.[82] In fiscal year 2021/22, the government eliminated importation tax for smartphones. However, TCRA noted that due to the COVID-19 pandemic, the waiver did not affect prices significantly. TCRA reinstated the importation tax for smartphones in the 2022/23 fiscal year.

TABLE 3: GSMA device cost scores, 2021[83]

COUNTRY	DEVICE COST
RWANDA	18.9
TANZANIA	35.3
UGANDA	36.2
KENYA	40.6

Relatively high device costs are not unique to Tanzania, Table 3 shows that the cost of an entry-level internet-enabled handset in Tanzania is about in line with costs in neighboring countries, Rwanda excepted.

ECOSYSTEM OF RELEVANT INTERNET APPLICATIONS

The 2022 A4AI Meaningful Connectivity for Rural Communities report revealed that African governments need to invest more to ensure meaningful connectivity for their citizens.[84] The most popular innovation that enables meaningful connectivity in Tanzania is mobile money as it is built on the technology of basic mobile phones and experiences high adoption levels. Mobile money is integrated with the payment of various government and utilities services which operate on 2G network infrastructure. Aside from mobile money, there is a need to build the ecosystem of relevant applications to stimulate meaningful use of the internet. This requires investment in infrastructure, initiatives to increase adoption of smartphones and access to devices, and development of online applications that provide use cases for people in both rural and urban settings.

BOX 7: Meaningful connectivity explained[85]

More than half of the world is now online, but many people lack the quality of access they need to use the internet's most powerful features such as online learning, video streaming, and telehealth. The A4AI meaningful connectivity target is a tool to raise the bar for internet access and set more ambitious policy goals for digital development. It sets minimum thresholds across the four dimensions of internet access that matter most to users. These are:

- **Regular internet use**–minimum threshold: daily use
- **An appropriate device**–minimum threshold: access to a smartphone
- **Enough data**–minimum threshold: an unlimited broadband connection at home or a place of work or study
- **A fast connection**–minimum threshold: 4G mobile connectivity.

82 "HOTUBA YA WAZIRI WA HABARI, MAWASILIANO NA TEKNOLOJIA YA HABARI MHESHIMIWA NAPE MOSES NNAUYE (MB.), AKIWASILISHA BUNGENI MAKADIR." Ministry of Information and Communication and Information Technology. 2022. Speech of the Minister for Information and Communication and Information Technology. https://www.mawasiliano.go.tz/uploads/documents/sw-1653060914-Hotuba%20ya%20Wizara%20ya%20Habari.pdf.

83 Cost of an entry-level internet enabled handset as reported by the GSMA connectivity index:.

84 "Meaningful Connectivity: Rural Report: Geographic Barriers & Policy Strategies for Digital Inclusion."May 16, 2022. Alliance for Affordable Internet. (A4AI) https://a4ai.org/research/meaningful-connectivity-rural-report/

85 "Meaningful Connectivity: A New Target to Raise the Bar for Internet Access." Alliance for Affordable Internet. 2020. https://docs.google.com/document/d/1qydsmTY4hln3pP4dWJbCSRFna8SfDYAtGfacKYwhVk8/edit.

BOX 8: Government digital services aim to promote increased use

- Driven by the e-Government Authority (eGA), the government digitalized many of its citizen-facing business processes. eGA championed mobile government through systems such as the Government e-Payment Gateway, which digitized payments for utilities, taxes, and other services rendered by government organizations.
- The initiative is geared toward increasing access and efficiency for government and citizens, thereby stimulating demand for digital services. However, most government digital services lack accessibility features tailored for people with disabilities.
- The health sector is leading in digital initiatives. Progress has been made in pushing digital solutions to primary health care facilities. However, patient data is not accessible to patients. Efforts to make personal health data available to patients might increase the relevance of digital solutions to citizens.
- Despite these efforts, TCRA and eGA noted that improvements are needed especially for the incorporation of assistive technology to increase accessibility.

LOW DIGITAL LITERACY AS A HINDRANCE TO DIGITAL ADOPTION, AND EFFORTS TO ADDRESS THE CHALLENGE

Low digital literacy is among the most cited barriers to widespread meaningful use of digital technologies. Although digital technologies permeate almost every aspect of life, ICT skills are not well integrated in the education system in a meaningful way or at scale. Although some basic training is included in colleges and universities, practical, market-oriented skills are lacking. There is a mismatch between the supply and skills and a lack of professional courses for competitive competencies.

KEY TERMS | BOX 4: Digital Literacy Explained

USAID defines digital literacy as the ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic, social, and political life.

Digital literacy has two pillars: capacity and safety. Capacity refers to the technical knowledge and skills required to use a variety of digital devices and services. Safety refers to the skills and awareness required to use digital tools carefully while navigating potential harms and cyber threats successfully.

Digital literacy competencies are skills that support users to safely and effectively use technology. USAID uses the European Digital Competence Framework for Citizens (DigComp Framework). The most recent version, DigComp 2.2. was released in 2021 and details digital competencies across five dimensions: information and data literacy; communication and collaboration; digital content creation; safety; and problem solving.

Source: USAID Digital Literacy Primer, 2022

In 2007, the GoT developed an Information and Communication (ICT) Policy for basic education,[86] aimed at integrating technology into pre-school, primary, and secondary schools. Many initiatives on digital skills are supported by development partners, including the African Digital School Initiative (ADSI), which is a three-year program started in 2017 aimed at developing secondary schools into Digital Schools of Distinction. The program focuses on 40 schools and expects to reach 1,200 teachers and 40,000 students.[87]

86 "UNITED REPUBLIC OF TANZANIA MINISTRY OF EDUCATION AND VOCATIONAL TRAINING (MoEVT) INFORMATION & COMMUNICATION TECHNOLOGY (ICT) POLICY FOR BASIC EDUCATION." The United Republic of Tanzania. 2007. Planipolis. https://planipolis.iiep.unesco.org/sites/default/files/ressources/tanzania_ict_policy_for_basiceducation_2007.pdf.

87 "Replay: Report Launch – Digital Education in Tanzania." Fingo 2020. https://fingo.fi/en/fingo-powerbank/learning-material/replay-report-launch-digital-education-in-tanzania/.

Several digital learning solutions and services in Tanzania target all levels of education, from pre-primary through primary and secondary education to education targeted to adults or professional development. Some of these include:

- ***Ubongo Kids:*** supports children's learning through fun, localized, and multi-platform educational content
- ***Elimu Tanzania:*** provides educational material and content for preparation for national examinations
- ***Mtabe App:*** a chat-based search engine delivering answers to students' questions.
- ***Robotec Lab:*** provides space, guidance, and tools to learn, build robots, and do programming
- ***Shule direct:*** local, accessible, digitized learning content for individual students and teachers as well as schools.

PILLAR 2: DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE

Digital Society, Rights, and Governance focuses on how digital technology intersects with government, civil society, and the media. This pillar is divided into three sub-pillars: Internet Freedom; Civil Society and Media; and Digital Government. Internet Freedom explores factors that enable or constrain the exercise of human rights and fundamental freedoms online. This includes individual rights to freedom of speech, privacy, and free assembly, and the abuse of these rights through digital repression. Civil Society and Media identifies key institutions and how they report on, advocate around, and influence online freedoms. Digital Government looks at the government's efforts to manage internal information technology (IT) processes and systems, deliver citizen- and business-facing e-services, and engage with the public through digital channels.

KEY TAKEAWAYS: DIGITAL SOCIETY, RIGHTS, AND GOVERNANCE

FINDINGS

- **There was a constriction of the online civic space and digital rights under the late President Magufuli.** With the entry of President Hassan in March 2021, there has been greater openness. However, nearly all of the restrictive laws are still in place and the prospects for amending or repealing them are uncertain.
- **The lack of a data governance framework and the criminalization of circumvention technologies curtails anonymity online and facilitates surveillance.** A data protection bill is expected to be passed in 2023. Its implementation could indicate how the Hassan administration approaches regulation of the digital space.
- **Local civil society is weak and requires support to organize, advocate, and raise awareness about digital rights.** International digital rights advocacy CSOs stand in solidarity with local CSOs.
- **The government let go of multistakeholder internet governance in 2018 when it became the sole stakeholder on the internet Domain Name System (DNS).** The government enforces the use of the .tz domain, and maintains stringent registration policies..
- **The GoT is committed to digital government transformation as shown by a move toward interoperable systems and new citizen-facing platforms.** The government develops innovative digital solutions in-house, working with development partners.

RELEVANT RECOMMENDATIONS

1. Promote dialogue to review and repeal laws that constrict digital rights
2. Support resilience of CSOs to advocate for digital rights and democracy including freedom of expression online
3. Support open government and partnerships for development of digital government solutions to strengthen local government in priority sectors
4. Encourage a multi-stakeholder approach to internet governance in support of increased transparency and security
5. Strengthen cybersecurity through deepening the talent pool, raising public awareness, and providing technical assistance to the government *(cross cutting)*

INTRODUCTION

In March 2021, Tanzania experienced a change of political leadership when President Hassan took over after late President Magufuli's death. Under late President Magufuli, who assumed power in November 2015, civic space indicators deteriorated rapidly, depicting a hostile environment for human rights. For example, CIVICUS, a global alliance that tracks civic space, rates Tanzania as REPRESSED, its second worst rating,[88] Reporters Without Borders (RSF) reported a rapid fall in ranking from 69 to 123 out of 180 countries between 2015 and 2022,[89] and Freedom House gave Tanzania a similar low ranking at 34 from 58 out of 100 between 2017 to 2022 as PARTLY

88 The REPRESSED ranking denotes a constrained civic space experiencing threats to individuals, CSO-work impeded, media-targeted, and websites and social media blocked. Ratings - CIVICUS - Tracking conditions for citizen action. https://monitor.civicus.org/country/tanzania

89 Reporters Without Frontiers – Tanzania. Accessed May 2022. https://rsf.org/en/country/tanzania.

FREE.[90] This is the environment that President Hassan inherited in March 2021. There have been some signs of greater openness under President Hassan in terms of internet freedoms, capacity, and the role of civic space advocacy institutions, namely civil society organizations (CSOs), and media and online content creators.[91]

The GoT is committed to digital transformation of government systems and services. This was reaffirmed with the establishment of the e-Government Authority (eGA) in 2019. While e-GA sets the framework and develops national digital platforms and websites for national government agencies and ministries, PO-RALG is the bridge to the Local Government Authorities (LGAs) on the digitalization agenda. There is a push for locally developed digital government solutions across sectors that support operational and financial sustainability. However, Tanzania's digital government initiatives to engage citizens are not keeping pace with global trends. The 2022 UN E-Government Development Index (EGDI) scored Tanzania at 153 out of 193, down from 130 in 2016.[92]

KEY TERMS | BOX 4: Digitization, digitalization, and digital transformation

Digitization is the conversion of documents into an electronic format.

Digitalization denotes a more profound shift in work processes and organizational culture.

Digital Transformation: a large-scale, organization level, profound change in multiple work processes and in organizational culture brought about by leveraging digital technologies.

2.1 CHANGE IN ADMINISTRATION BRINGS OPPORTUNITY FOR OPENING OF THE DIGITAL SPACE

MAGUFULI ERA LAID THE GROUNDWORK FOR REPRESSIVE LEGAL FRAMEWORKS

The online civic space was reconfigured under the late President Magufuli through the enactment and enforcement of new laws and regulations that constricted digital rights such as the Cybercrimes Act 2015, Electronic Transactions Act 2015, and Electronic and Postal Communications Act 2020 (EPOCA) (referred to as the Content Regulations), Media Services Act 2016, and Statistics Acts 2015 highlighted in Table 4 below. These laws and regulations, among others, were frequently used to infringe on online freedoms in access to information, expression, and online privacy under President Magufuli. While the Constitution of the United Republic of Tanzania sets a high bar on basic human rights under Article 8, it does not provide mechanisms to enforce its implementation, and thus the judiciary was unable to enforce constitutional provisions on digital rights.[93] President Hassan's leadership has brought opportunity for openness through her calls for reform.[94]

90 "Tanzania: Freedom in the World 2022 Country Report." Freedom House. Accessed June 2022..https://freedomhouse.org/country/tanzania/freedom-world/2022.

91 The African Report. Tanzania: Cautious optimism as President Suluhu Hassan signals new policies Accessed November 9, 2022.

92 "EGOVKB | United Nations > Data > Country Information>Tanzania." EGOVKB | United Nations > Data > Country Information. UN Department of Economic and Social Affairs. 2022. Accessed June 2022. https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/183-United-Republic-of-Tanzania

93 Civil society organization. Interview with DECA Team, June 2022.

94 Civil society organization. Interview with DECA Team, June 2022.

TABLE 4: Selected legislation enforced to constrict digital rights

LEGISLATION		CERTAIN PROVISIONS USED TO CONSTRICT DIGITAL RIGHTS
EPOCA REGULATIONS	Electronic and Postal Communications Act (EPOCA) 2010[95]	The first regulatory regime for electronic communications and service providers.
	Electronic and Postal Communications (Online Content) Regulations 2018[96]	Building on the 2010 Act, regulations were made specific to online content, defined as "sound, data, text or images whether still or moving." The regulations cover online content service providers, application services licensees, online content users, and any other related online content. The regulations apply to content production, hosting and dissemination impacting bloggers, online discussion forums, radio, and television webcasters. The regulations were intended to monitor and regulate citizens' social media use and, in particular, to address problems such as disinformation and hate speech.[97] The regulations received criticism as they applied to individual bloggers (written, video, image, text, or other sound) and content providers in addition to mainstream media. Key elements and related criticisms include: • Vague and broad definitions including of the terms: content; hate speech; obscene content; blogs; bloggers; users; and safe and secure. • The definition of "online content service" includes content broadcasting to the public through internet websites, application software, forums, blogs, weblogs, microblogs, public accounts, instant messaging tools, online live streaming, aggregators, and other related platforms. • Online content providers are required to use content moderation tools to filter prohibited content. This was viewed as a limitation on freedom of expression. • Vague indication that online content providers are required to cooperate with law enforcement. This included the requirement for online content service providers to report content source which was a concern for whistleblowing.[98] • Licenses and associated high fee of USD $900 for all individuals and entities who produced content. This extends beyond traditional broadcasting entities to individual bloggers. • Internet cafes are required to filter prohibited content, install video cameras to record user activity inside the location, and keep the surveillance footage for 12 months, and to register all users using their ID cards. • Vague but extensive list of prohibited content including hate speech and indecent content, pornography, sexual offenses, violent content, torture (imagery of aggression), public disorder, hate propaganda, national security, public health and safety, bad language, and false content.[99] • Prohibits the use of tools that enable people to access unallowed content, essentially banning VPNs and restricting anonymity.[100]

95 The Electronic and Postal Communications Act, 2010. https://www.researchictafrica.net/countries/tanzania/Electronic_and_Postal_Communications_Act_no_3_2010.pdf

96 The United Republic of Tanzania. 2018. "THE ELECTRONIC AND POSTAL COMMUNICATIONS (ONLINE CONTENT) REGULATIONS, 2018." TCRA. https://tcra.go.tz/uploads/documents/sw-1619087888-The%20Electronic%20and%20Postal%20Communications%20(Online%20Content)%20Regulations,%202018.pdf.

97 "Post-Magfuli, will Tanzania review its repressive online content regulations?" Global Voices. March 30, 2021. https://globalvoices.org/2021/03/30/post-magufuli-will-tanzania-review-its-repressive-online-content-regulations/

98 Civil society organization. Interview with DECA Team, June 2022.

99 "Tanzania: Electronic and Postal Communications (Online Content) Regulations 2018." ARTICLE 19. 2018. https://www.article19.org/wp-content/uploads/2018/05/Tanzania-Online-Content-Regulations-2018-Final.pdf

100 Berhan, Taye. "Internet censorship in Tanzania: the price of free expression online keeps getting higher." Access Now. Octob34 22, 2020. https://www.accessnow.org/internet-censorship-in-tanzania/

LEGISLATION		CERTAIN PROVISIONS USED TO CONSTRICT DIGITAL RIGHTS
	Revised Electronic and Postal Communications (Online Content) Regulations 2020[101]	The primary revisions in the 2020 regulations made the 2018 regulations more specific, as follows: • Refined definition of online content: the 2018 definition was broad and included content through private communications. The 2020 regulations amended the definition to exclude private communications. • Introduced license types: the 2018 license fees were very general. The 2020 revisions provided more clarity and outlined four types of licenses: (1) for the provision of news and current affairs online; (2) for the provision of entertainment (music, movies, series, plays, drama, comedy, sports) online; (3) for the provision of educational or religious content online; and (4) for mainstream broadcasting licensees with national coverage rights. However, the license categories could impose additional costs for individuals or organizations broadcasting more than one type of content (e.g., news and entertainment). The 2020 law included a list of specific requirements and supporting documents for all license applicants.[102] • Expanded the list of prohibited content now categorized into 10 types. While the prohibited content is outlined in more detail than in the 2018 regulations, vague language is still used, leaving the regulations up to various interpretations and manipulations. Prohibited content under the 2020 regulations includes hate speech, any content that "may threaten national security or public health and safety," content that promotes "phone tapping, espionage, data theft, tracking, recording, or intercepting communications without right."[103] • Reduced time for content take-down. Under the 2018 regulations, content providers had 12 hours to inform the individual subscriber to remove the prohibited content. The 2020 regulations reduced that time to two hours. The time to suspend or terminate a subscriber's account for failure to comply with a take-down notice was cut from 12 to 2 hours. Content take-down requests could be ordered by any individual affected by the posted content. They do not have to come from a judicial entity.[104]
	Electronic and Postal Communications (Online Content) Amendment 2022[105]	Major adjustments included:[106] • New definitions were introduced for online media services and online content aggregators. • Definitions were updated for terms including online content service, mainstream media, and weblog. • Requirements for internet cafes were removed. • Licensing fees were reduced to about USD $235.[107] • Additional details were added to the list of prohibited content.

101 The United Republic of Tanzania. 2020. "THE ELECTRONIC AND POSTAL COMMUNICATIONS (ONLINE CONTENT) REGULATIONS, 2020." TCRA. https://www.tcra.go.tz/uploads/documents/en-1619088125-The%20Electronic%20and%20Postal%20Communications%20(Online%20Content)%20Regulations,%202020.pdf

102 "TANZANIAN ELECTRONIC AND POSTAL COMMUNICATIONS (ONLINE CONTENT) REGULATIONS, 2020, PUBLISHED." Bowmans. July 31, 2020. https://www.bowmanslaw.com/insights/technology-media-and-telecommunications/tanzanian-electronic-and-postal-communications-online-content-regulations-2020-published/

103 "TANZANIAN ELECTRONIC AND POSTAL COMMUNICATIONS (ONLINE CONTENT) REGULATIONS, 2020, PUBLISHED." Bowmans. July 31, 2020. https://www.bowmanslaw.com/insights/technology-media-and-telecommunications/tanzanian-electronic-and-postal-communications-online-content-regulations-2020-published/

104 "ANALYSIS OF THE ELECTRONIC AND POSTAL COMMUNICATIONS (ONLINE CONTENT) REGULATIONS, 2020 ." Media Council of Tanzania. .https://mct.or.tz/wp-content/uploads/2020/08/EPOCA-Online-Content-Regulations-2020-Analysis.pdf

105 "THE ELECTRONIC AND POSTAL COMMUNICATIONS (ONLINE CONTENT) (AMENDMENT) REGULATIONS, 2022." The United Republic of Tanzania. 2022. TCRA. https://www.tcra.go.tz/uploads/documents/sw-1649054831-The%20Online%20Content%20GN%20No.%20136.pdf.

106 "TANZANIA: AMENDMENTS TO THE REGULATIONS UNDER THE ELECTRONIC AND POSTAL COMMUNICATIONS ACT." Bowmans. July 8, 2022. https://www.bowmanslaw.com/insights/corporate-services/tanzania-amendments-to-the-regulations-under-the-electronic-and-postal-communications-act/

107 "The Electronic and Postal Communications Act. GOVERNMENT NOTICE No. 136 published on 18/3/2022." Tanzania Communications Regulatory Authority. https://www.tcra.go.tz/uploads/documents/sw-1649054831-The%20Online%20Content%20GN%20No.%20136.pdf

LEGISLATION	CERTAIN PROVISIONS USED TO CONSTRICT DIGITAL RIGHTS
ELECTRONIC AND POSTAL COMMUNICATIONS (DOMAIN NAMES MANAGEMENT) REGULATIONS, 2020[108]	• Requires organizations operating in the country to register a .tz domain and use the same for official correspondence [Section 3(2)e]. The regulations do not define official correspondence but the regulatory environment under which the regulations were enacted implies non-use of generic TLDs.com, and .org. Noncompliance risks prosecution.
THE MEDIA SERVICES ACT, 2016[109]	• Gives government agencies broad powers to censor and limit the independence of the media through journalist accreditation. • Includes the power to unilaterally suspend or cancel newspaper licenses. Though the actions are directed to the offline media, online media operates under the same environment and are thus affected.
THE CYBERCRIMES ACT 2015[110]	• Obligation to immediately take down illegal content or disable access to the system. Illegal content is not defined. • Broadly defines "obstruction of investigations" in a way that can include refusal to give details of online forum users. This severely compromises online privacy.
THE STATISTICS ACT, 2015[111]	• Controls independent research and public access to independent statistical information, reducing citizens' alternative sources of independently verified information. • Amendments in June 2019 removed criminal liability for publishing non-official statistics. The authorities still control who can gather and disseminate statistical information and determine what is factual or false.
THE ELECTRONIC TRANSACTIONS ACT 2015[112]	• Cryptographic service providers must provide a description of the technology to be applied in the service (Sec 35(2) d.).

A personal data protection framework to govern access to personal data, use, processing, or sharing is not in place. This is a critical element to ensure online freedoms and privacy and the ruling party Chama Cha Mapinduzi (CCM) in Section 61 (Communication), subsection B of the 2020-25 manifesto committed to enact a Personal Data Protection Act by 2025. This may come earlier as announced by the Permanent Secretary for MICIT in a November 2021 presentation to the Tanzania Internet Governance Forum (TzIGF) stating that the Data Protection Bill was about to be finalized for enactment.[113,114] This will close a long journey in the quest to enact personal data protection legislation, starting with its introduction in Parliament in 2014. Progression of the legislative bill in Parliament was unsuccessful because of the then existing climate against digital rights. This has

108 "THE ELECTRONIC AND POSTAL COMMUNICATIONS (DOMAIN NAMES MANAGEMENT) REGULATIONS, 2020." The United Republic of Tanzania. 2020. TzCERT. https://karibu.tz/media/regulations.pdf

109 "The Media Service Act, 2016." The United Republic of Tanzania. 2016. Tanzania Legal Information Institute. https://old.tanzlii.org/node/17663

110 "THE CYBERCRIMES ACT, 2015." The United Republic of Tanzania. 2015. Tanzania Communications Regulatory Authority. https://www.tcra.go.tz/uploads/documents/en-1619083811-The%20Cybercrimes%20Act,%202015.pdf.

111 "The Statistics Act 2015." The United Republic of Tanzania. 2015. Tanzania Legal Information Institute https://tanzlii.org/akn/tz/act/2015/9/eng@2019-11-30 .

112 "THE ELECTRONIC TRANSACTIONS ACT, 2015." Mamlaka ya Serikali Mtandao. The United Republic of Tanzania. 2015. https://www.tcra.go.tz/uploads/documents/en-1619083875-The%20Electronic%20Transactions%20Act,%202015.pdf.

113 Civil society organization. Interview with DECA Team, June 2022.

114 Lugongo, Bernard. 2021. "Tanzania: Law On Personal Data Protection in Pipeline." allAfrica.com, November 7, 2021. Accessed June 2022. https://allafrica.com/stories/202111070087.html.

since changed and the bill was introduced in Parliament in October 2022, approved, and presented to the President for enactment in November 2022.[115]

While personal data protection is a critical foundation of digital rights, CSOs led by Jamii Forums identified as many as 53 pieces of legislation that should be repealed to ensure an open civic online space.[116] A great effort would be required to sensitize and mobilize government stakeholders to repeal the laws, testing the government's commitment to reform. President Hassan's rhetoric has brought hope through promises of reform.[117] However, repressive laws are still in place.[118]

BOX 9: JamiiForums: a prominent platform fighting for digital rights

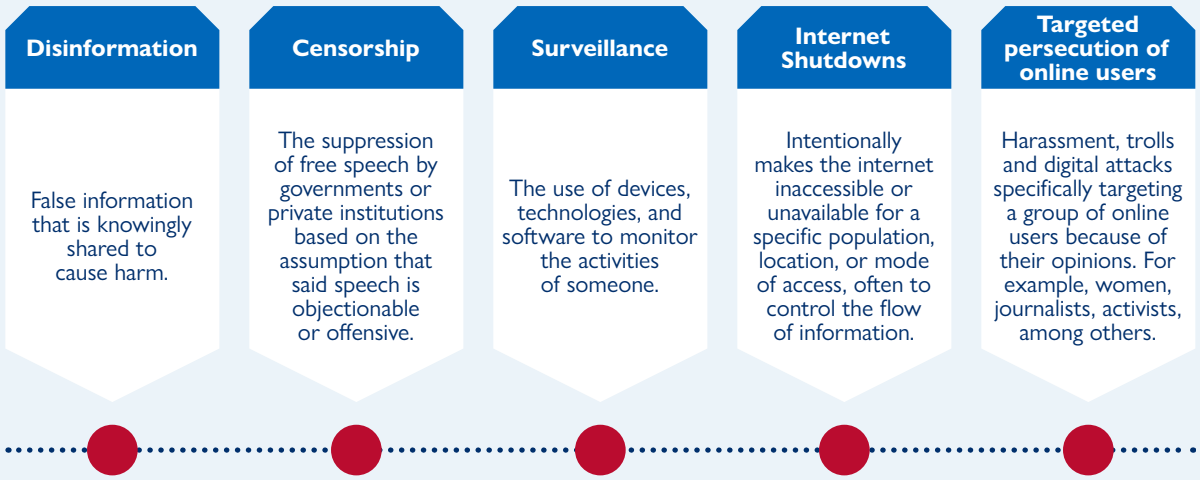
JamiiForums is a site that hosts blogs and reports on breaking news. It was founded as a space in which Tanzanians could engage in discussions about social, political, and economic issues anonymously. Its mission is to promote freedom of expression in Tanzania and to ensure the privacy of citizens who seek to engage in online discussion on current issues. JamiiForums encourages citizen journalists to report on issues, offering an alternative to mainstream news outlets. Since the establishment of the organization in 2006, the site stood by its commitment to digital privacy and confidentiality, despite reports that Tanzanian authorities repeatedly requested information about its anonymous contributors.

DIVERSE DIGITAL REPRESSION TOOLS LED TO SELF-CENSORSHIP

KEY TERMS | BOX 5: Digital repression

Digital repression refers to the use of digital tools and technologies to violate human rights and includes five techniques: surveillance, censorship, social manipulation and disinformation, internet shutdowns, and targeted persecution of online users.[119]

FIGURE 13: Digital repression techniques



Source: DECA Toolkit, Access Now

115 "Tanzania: Parliament Passes Personal Information Protection Bill." DataGuidance, December 19, 2022. https://www.dataguidance.com/news/tanzania-parliament-passes-personal-information.

116 Civil society organization. Interview with DECA Team, June 2022.

117 The African Report; Tanzania: Cautious optimism as President Suluhu Hassan signals new policies Accessed November 9, 2022.

118 Government Ministry. Interview with DECA Team, August 2022.

119 "USAID Digital Ecosystem Country Assessment," USAID.gov, cited April 28, 2022, https://www.usaid.gov/digital-development/deca-toolkit

Enforcement of legislation that had a repressive effect on citizens impacted the right to privacy online. The government used extra-legal methods as tools for digital repression including hacking, surveillance, and banning online privacy circumvention technologies such as encryption and virtual private networks (VPNs).[120,121] Other tools included internet shutdowns and social media site disruptions especially during the election period in October 2021.[122] Table 5 summarizes the use of digital repression tools.

TABLE 5: Selected incidents of digital repression

DIGITAL REPRESSION TOOL	ENABLING LEGISLATION	EXAMPLE INCIDENTS
SURVEILLANCE	The Cybercrimes Act 2015 The Electronic Transactions Act, 2015 EPOCA (2010)	President Magufuli's public release of private communications among ministers confirmed officially sanctioned surveillance.[123] The GoT acquired surveillance technology for social media sites and for intrusion software from the Hacking Team, an Italian firm, procuring a Remote Control System for intrusion into systems across major mobile platforms and operating systems.[124] Operator licensing requires data-sharing without knowledge of the client (individual consumer). Tigo acknowledged that this was in compliance with the licensing conditions.[125]
CENSORSHIP	EPOCA (Content Regulations) 2020 The Media Services Act, 2016 Statistics Act, 2015	Immediate content takedown measures enforced on the media by the GoT.[126] Stringent registration requirements for bloggers and all online platforms[127] All research that would be made public required GoT review and approval.[128]
SOCIAL MANIPULATION AND HARASSMENT	The Cybercrimes Act, 2015	Online content creators[129] and journalists were arrested.[130] A journalist reportedly disappeared in at least one case.[131]

120 Civil society organization. Interview with DECA Team, June 2022.

121 "Undermining Encryption in Africa ." Collaboration on International ICT Policy for East and Southern Africa (CIPESA). 2021. Accessed June 2022. https://cipesa.org/?wpfb_dl=477.

122 "Internet disrupted in Tanzania on eve of general elections." NetBlocks Internet Observatory. October 27, 2020. Accessed June 2022 https://netblocks.org/reports/internet-disrupted-in-tanzania-on-eve-of-presidential-elections-oy9abny3.

123 "Magufuli says he monitors ministers' phone conversations." Business Daily. Accessed December 8, 2022. https://www.businessdailyafrica.com/bd/news/east-africa/tanzania/magufuli-says-he-monitors-ministers-phone-conversations-2234188..

124 Mwesigwa, Daniel. 2019. "Africa in the Crosshairs of New Disinformation and Surveillance Schemes That Undermine Democracy – Collaboration on International ICT Policy for East and Southern Africa." CIPESA. Accessed December 8, 2022. https://cipesa.org/2019/12/africa-in-the-crosshairs-of-new-disinformation-and-surveillance-schemes-that-undermine-democracy/..

125 "About Tigo." Tigo Tanzania. MIC Tanzania PLC. n.d. Accessed December 8, 2022. https://www.tigo.co.tz/?view=category&id=61..

126 Taye, Berhan. 2020. "Internet censorship in Tanzania: the price of free expression online keeps getting higher." Access Now. Accessed December 8, 2022.https://www.accessnow.org/internet-censorship-in-tanzania/.

127 Ng'wanakilala, Fumbuka. 2018. "Tanzania orders all unregistered bloggers to take down their sites." Reuters. Accessed December 8, 2022. https://www.reuters.com/article/us-tanzania-internet/tanzania-orders-all-unregistered-bloggers-to-take-down-their-sites-idUSKBN1J71W6.

128 Nkwong, Alima. 2021. "THRDC calls on govt to amend NGO Act, statistics to easy operations." IPPMEDIA. Accessed December 8, 2022.https://www.ippmedia.com/en/news/thrdc-calls-govt-amend-ngo-act-statistics-easy-operations

129 Front Line Defenders. 2016. "Maxence M. Melo arrested and detained | Front Line Defenders." Front Line Defenders. Accessed December 8, 2022. https://www.frontlinedefenders.org/en/case/maxence-m-melo-arrested-and-detained.

130 Waswa, Sandra. 2019. "Tanzania: Release Eric Kabendera and stop harassment of journalists - ARTICLE 19." ARTICLE 19. Accessed December 8, 2022. https://www.article19.org/resources/tanzania-release-eric-kabendera-and-stop-harassment-of-journalists/ 2

131 Nyeko, Oryem. 2019. "Tanzanian Journalist's Disappearance Remains Unsolved." Human Rights Watch. Accessed Decembr 8, 2022. https://www.hrw.org/news/2019/04/08/tanzanian-journalists-disappearance-remains-unsolved.

DIGITAL REPRESSION TOOL	ENABLING LEGISLATION	EXAMPLE INCIDENTS
INTERNET SHUTDOWNS AND DISRUPTIONS	EPOCA 2010 EPOCA (content regulations) 2020	Internet disruptions were documented during the October 2020 elections, and bulk SMS services blocked during October 2020 elections.[132] Social media sites were blocked.[133]
TARGETED PERSECUTION AGAINST ONLINE USERS	The Cybercrimes Act 2015 EPOCA (Domain Names Management) Regulations, 2020 Section 3(2) EPOC(Content Regulations) 2020 International - US's Digital Millennium Copyright Act	Denial of online privacy including through the effective ban of encryption tools (VPNs, encrypted messaging applications such as WhatsApp).[134] Weaponization of law on DNS; the use of .tz domain enforced with indictments on JamiiForums.[135] Demand for names of informants (whistle blowers).[136] Weaponization of copy infringement to shut down Twitter accounts; closure of Twitter handle for an activist Kigogo@2014 on the eve of the October 2020 election.[137]

To build surveillance technology capability, the government engaged the Hacking Team—an Italian company that sold offensive intrusion and surveillance capabilities to governments and law enforcement agencies.[138] The government under President Magufuli also reportedly acquired social media monitoring and spyware technology and demonstrated its capacity to surveil by releasing conversations of political leaders.[139] One consequence of this surveillance was online self-censorship.[140],

GOVERNMENT ASSERTS CONTROL THROUGH ABANDONMENT OF MULTISTAKEHOLDER APPROACH IN MANAGING THE DNS

The Government of Tanzania (GoT) let go of multi-stakeholderism in internet governance in 2018 and placed internet Domain Name System (DNS) space management under the sole direction of TCRA.[141] The country code Top Level Domain (ccTLD) registry under the name Tanzania Network Information Center (tzNIC) was initially set up as a multi-stakeholder partnership with the Tanzania Internet Service Providers Association

132 Ssessanga, iddi. 2020. "Tanzania: Internet slowdown comes at a high cost – DW – 11/05/2020." DW. Accessed December 8, 2022. https://www.dw.com/en/tanzania-internet-slowdown-comes-at-a-high-cost/a-55512732

133 Babatunde, Gbemileke. 2020. "Tanzanians Slam Government for Blocking Internet Access a Day to Elections." Technext. Accessed December 8, 2022 https://technext.ng/2020/10/27/tanzanians-slam-government-for-blocking-internet-access-a-day-to-general-elections/. Accessed Dec 8, 2022

134 Babatunde, Gbemileke. 2020.

135 "Jamii Forums co-founder ran 'unregistered domain.'" IPPMEDIA Accessed December 8, 2022.. https://www.ippmedia.com/en/news/jamii-forums-co-founder-ran-%E2%80%98unregistered-domain%E2%80%99

136 The Citizen. 2019. "Minister Lugola launches attack on twitter user 'Kigogo' ahead of civic polls." The Citizen. Accessed December 8, 2022.https://www.thecitizen.co.tz/tanzania/news/national/minister-lugola-launches-attack-on-twitter-user-kigogo-ahead-of-civic-polls-2695988 accessed dec 8, 2022

137 Olewe, Dickens. 2020. "Tanzania 'using Twitter's copyright policy to silence activists.'" BBC Accessed December 8, 2022. https://www.bbc.com/news/world-africa-55186932.

138 Wikipedia. 2020. "Hacking Team." Wikipedia. Accessed June 2022. https://en.wikipedia.org/wiki/Hacking_Team.

139 Tanzania Human Rights Report 2021. Accessed June 2022. https://www.state.gov/reports/2021-country-reports-on-human-rights-practices/tanzania/

140 Program Officer, ARTICLE 19. Interview with DECA Team, 2022.

141 " TZ Domain names registration portal." Tanzania Communications Regulatory Authority (TCRA). Accessed June 2022. https://karibu.tz/about.

(TISPA) as a co-founding partner. In abolishing multi-stakeholderism in 2018, the government excluded TISPA without consultation. This is against best practice management of the ccTLD registry.[142]

The DNS helps navigate the internet by matching unique human readable domain names to machine readable Internet Protocol (IP) addresses. It is a critical foundation for the internet through orderly and unique registration of domain names and through matching them to IP addresses to assure global identity. The internet emanates from non-government actors who continue to play a fundamental role in its growth and from a global best practice center based on a multi-stakeholder approach that enables non-government actors to contribute to a thriving internet community. TCRA's decision to move away from multi-stakeholderism aimed to ensure economic sustainability of the ccTLD registry.[143]

As the sole driver, the government set out to enforce use of the .tz domain space by all organizations operating in the country.[144] The Electronic and Postal Communications (Domain Names Management) Regulations, 2020 Section 3(2) require that official correspondence use the registered .tz domain. Some international CSOs found it difficult to operate in Tanzania as they would have to register a .tz domain to comply.[145]

Enforcing use of the .tz domain for organizations operating in the country, while a positive move for growth of the DNS space, also had the potential to enable the government to deregister organizations. The GoT used the DNS in its efforts to curtail internet freedoms; for example JamiiForums' CEO was indicted on the grounds that the organization was operating a .com domain name that was not registered in Tanzania.[146],[147]

In a similar move, the government took over the control of internet switching in 2019 through Internet eXchange Points (IXPs) from TISPA, underlining the desire to control the foundation of the internet. TCRA directed that the IXPs be moved to the government-owned Tanzania Telecommunications Communications Ltd (TTCL) on the grounds that IXPs are a critical infrastructure. TISPA complied, but continues to maintain the view that IXPs should remain operator-neutral and is concerned that TTCL is commercializing IXP traffic.[148] Before TTCL took over the IXPs, fees charged at IXPs were to defray costs of operation through a cooperative venture jointly owned by ISPs.

2.2 CIVIL SOCIETY AND MEDIA FIGHT BACK TO THE EXTENT THEY CAN

INTERNATIONAL AND REGIONAL CSOS STAND IN UNITY WITH WEAKENED LOCAL CSOS

A restrictive legal framework impaired local CSO advocacy operations and their capacity and sustainability. International CSOs such as CIVICUS, Collaboration of ICT Policy in Eastern and Southern Africa (CIPESA), and Article 19 stood in solidarity with local CSOs during the Magufuli era. In 2018, the government halted registration of new NGOs under the NGO Act and demanded that all existing NGOs renew registration within a month, under stringent conditions including a letter confirming their existence from the local government in their area of operation, a copy of its Constitution certified by regional administration, and an NGOs certificate

142 Civil society organization in the telecommunications sector. Interview with DECA Team, July 2022.

143 Government entity. Interview with DECA Team, June 2022.

144 "TCRA to enforce use of .tz domain names." Power computers Telecommunications ltd. 2017. Power computers, October 26, 2017. Accessed June 2022. https://powercomputers.co.tz/tcra-to-enforce-use-of-tz-domain-names/

145 International civil society organization. Interview with DECA Team, 2022.

146 Civil society organization. Interview with DECA Team, 2022.

147 "Jamii Forums co-founder ran 'unregistered domain.'" IPPMedia, December 17, 2016. Accessed June 2022. https://www.ippmedia.com/en/news/jamii-forums-co-founder-ran-%E2%80%98unregistered-domain%E2%80%99.

148 Civil society organization in the telecommunications sector. Interview with DECA Team, July 2022.

of registration and receipts of annual membership fee or bank slips since registration.[149] While no CSO's registration was revoked, operating conditions became difficult. To date, CSOs still must get approval from the local administration before going to the community they wish to serve—an approval that can be difficult to get.[150] Other conditions imposed are financial. The 2018 regulations required NGOs to publicly declare their sources of funds, expenditures, and intended activities and to get approval of their spending plans from the national treasury, or face deregistration.[151] Three months before the national elections, the government banned public interest litigation—a critical foundation of advocacy.[152] This was an even greater challenge for CSOs to surmount and affected their core mandate. Public interest litigation is an accepted tool for access to justice for individuals such as human rights defenders, and public interest lawyers and organizations who are not directly affected by a particular constitutional violation but are assisting the society to achieve social or legal remedy, protection of their constitutional order, or systemic change.[153] In 2019, the Government withdrew its commitment to allow CSOs and individuals to file cases in the African Court on Human and People Rights based in Arusha.[154] This not only undermined the authority of the Court it hosts but also removed an important avenue for justice in a country beset with human rights challenges.

The cumulative impact of enforcement of these measures was to weaken CSOs, limiting their capacity to advocate for digital rights and freedoms. International CSOs assumed the advocacy responsibility and have continued to advocate at both regional and international levels. Article 19, CIVICUS, Human Rights Watch, and CIPESA among others kept the momentum and continue to strengthen local CSOs. In 2018, CIPESA conducted workshops on digital tools to assure online anonymity and this support continued in 2022 in its work with Media Convergency, a local CSO.[155] Article 19 continues to organize workshops to strengthen media CSOs.

BOX 10: In solidarity with local CSOs

ARTICLE 19 focuses on bringing the international community's attention to human rights violations in the country through engagement with international mechanisms. They train journalists and local civil society groups to effectively engage with UN and African Union bodies. Article 19 monitors digital threats and surveillance tactics and develops mitigation strategies to help civil society and human rights defenders continue their work without suffering censorship.[156]

149 "The NGOs Code of Conduct." The United Republic of Tanzania National Council of NGOs. 2017. Accessed September 2022. https://www.nacongo.or.tz/resources/view/tanzanian-govt-verifies-over-2000-ngos.)

150 Human Rights Watch. 2019. ""As Long as I am Quiet, I am Safe": Threats to Independent Media and Civil Society in Tanzania." Human Rights Watch. 2019. Accessed June, 2022. https://www.hrw.org/report/2019/10/28/long-i-am-quiet-i-am-safe/threats-independent-media-and-civil-society-tanzania.

151 Human Rights Watch. 2019. ""As Long as I am Quiet, I am Safe": Threats to Independent Media and Civil Society in Tanzania." Human Rights Watch. 2019. Accessed June, 2022. https://www.hrw.org/report/2019/10/28/long-i-am-quiet-i-am-safe/threats-independent-media-and-civil-society-tanzania.

152 International civil society organization. Interview with DECA Team, July 2022.

153 Bwire, Deogratias. "EXTINCTION OF PUBLIC INTEREST LITIGATION IN TANZANIA." n.d. Academia.edu. Accessed July 2022. https://www.academia.edu/43262639/EXTINCTION_OF_PUBLIC_INTEREST_LITIGATION_IN_TANZANIA.

154 Amnesty International. 2019. "Tanzania: Withdrawal of individual rights to African Court will deepen repression." Amnesty International. 2019. Accessed June 2022. .https://www.amnesty.org/en/latest/press-release/2019/12/tanzania-withdrawal-of-individual-rights-to-african-court-will-deepen-repression/.

155 Civil society organization. Interview with DECA Team, June 2022.

156 "Tanzania." ARTICLE 19. Accessed June 2022. https://www.article19.org/region/tanzania/

JOURNALISTS AND ACTIVISTS SPEAK OUT BUT FACE CONSEQUENCES

Tanzania has a wide range of online media with a sizable following. The online media landscape is extensive with 474 online TV channels and about 100 news websites as of the start of 2022.[157] The Media Services Act 2016, EPOCA (Content Regulations) 2020, and Cybercrimes Act 2015, curtailed freedom of media and online content creation. The government used the Media Services Act 2016 and EPOCA (Content Regulations) 2020 to enforce content take-down and to shut down media organizations through deregistration and by banning media outlets that were deemed hostile to the government. Women journalists and content creators are especially vulnerable to harassment with psychological consequences.[158]

Digital repression affected support for the LGBTQ+ community with increasing momentum since 2015. The GoT initiated a crackdown on the LGBTQ+ community and the mainstream media, and CSOs slowly avoided engagement with the community. Marginalization that started offline eventually extended online. In September 2022, the Minister for ICT restated that social media in Tanzania would not be a platform for promotion of LGBTQ+. He required social media administrators to ensure that messages or videos that promoted LGBTQ+ communities were not allowed online.[159]

This is a continuation of a long-term crackdown on the LGBTQ+ community whose sexual orientation is illegal in Tanzania. The GoT enforced the law that was enacted by former President Magufuli. A task force was established in 2018 to monitor the internet to identify individuals and groups promoting homosexuality and punish them.[160]

In addition to journalists and online creators, CSOs perceived to be supporting the LGBTQ+ community are affected. At least three CSOs were deregistered and other actors were deported. This has had a significant impact on CSOs in their work with the LGBTQ+ community. Efforts to address this by international organizations and governments including the World Bank—which threatened to withdraw funding—have not been successful.[161]

In the wake of President Hassan's April 2021 promises on media reforms,[162,163] stakeholders met in July 2022 to review a compendium of proposals to amend the Media Services Act 2016. Stakeholders pointed out that Tanzania hosted the first Continental World Press Freedom Day in May 2022 in Arusha and the President and Minister for ICT spoke positively about media freedom.[164]

157 "Tanzania Index 2022 and Index 2021." Reporters Without Frontiers - Tanzania. Accessed May 2022. https://rsf.org/en/country/tanzania

158 International civil society organization. Interview with DECA Team, July 2022.

159 Tanzania warns of crackdown on pro-LGBT messages on social media. Accessed November 16, 2022. https://76crimes.com/2022/09/13/tanzania-warns-of-crackdown-on-pro-lgbt-messages-on-social-media/

160 LGBT rights in Tanzania. Wikipedia. Accessed November 16, 2022. ; https://en.wikipedia.org/wiki/LGBT_rights_in_Tanzania)

161 "As Long as I am Quiet, I am Safe: "Threats to Independent Media and Civil Society in Tanzania." Human Rights Watch. 2019. Accessed June 2022. . https://www.hrw.org/report/2019/10/28/long-i-am-quiet-i-am-safe/threats-independent-media-and-civil-society-tanzania.

162 New Tanzania president to lift ban on media organizations. Accessed November 16, 2022. https://ipi.media/new-tanzania-president-to-lift-ban-on-media-organizations/

163 President Samia: Tanzania to review 'harsh' media laws. Accessed November 16, 2022. https://www.theeastafrican.co.ke/tea/news/east-africa/president-samia-tanzania-to-review-harsh-media-law-3803272

164 Media organization. Interview with DECA Team, August 2022.

2.3 A PUSH FOR HOME GROWN DIGITAL GOVERNMENT SOLUTIONS IN PARTNERSHIP WITH NON-GOVERNMENTAL ACTORS

KEY TERMS | BOX 6: USAID Digital Government Model[165]

Digital government[166] refers to the use of digital technologies as an integrated part of government modernization strategies to create public value.[167] Successfully navigating digital transformation requires more than adopting new applications; it requires a shift in processes and attitude toward agile and collaborative decision-making.

Digital government is built around three core functions—deliver, manage, and engage. The performance of digital government services depends on foundational elements such as change management, human capacity, legislation, policy, regulation, and infrastructure. Investment in these core components and foundational elements can help government bodies become more coordinated, efficient, resilient, proactive, and accountable.

STRONG GROUNDWORK FOR DIGITAL GOVERNMENT

The GoT reaffirmed its commitment to digital government with the establishment of the e-Government Authority (e-GA) under the e-Government Act 2019.[168] As outlined in Pillar 1, the other government stakeholders in digital government include MICIT, PO-RALG (Directorate of ICT), and the National Identification Authority (NIDA). Outside government and working in concert are development partners and private sector actors. Some of the key actors are highlighted below in Table 6, see also Figure 2 and Figure 3.

TABLE 6: Key government institutions on digitalization

MINISTRY OF INFORMATION AND COMMUNICATION TECHNOLOGY (MICIT)	• Established in September 2021 under President Hassan, MICIT moved out from under the Ministry of Works, Transport, and Communication, signaling a commitment to digital transformation as an enabler for rapid development. • Mandated to formulate and monitor implementation of policies on information and communication technologies and drive the digital transformation agenda. • Oversees online communications and media services.
E-GOVERNMENT AUTHORITY (EGA)	• Established in 2019 under e-Government Act, 2019 • Mandated to coordinate, oversee, and promote e-government initiatives and to enforce e-government related policies, laws, regulations, standards, and guidelines in public institutions. • Enforces standards on private companies providing digital services to the government.
PRESIDENT'S OFFICE –REGIONAL ADMINISTRATION & LOCAL GOVERNMENT (PO-RALG)- DIRECTORATE OF ICT	• The interface with sector ministries, central ministries, and local authorities under a concept of Decentralization-by-Default. • Ensures that the digitalization agenda is achieved at the local level through regional administrations and local governments.

To drive digital government, the e-Government Act outlines e-GA's management and operations, digital infrastructure and systems, e-government services (e-services), e-government security and data management.

165 USAID Digital Government Model. Accessed June 2022. https://www.usaid.gov/digital-development/digital-ecosystem-framework

166 USAID uses the term digital government; other sources use terms including e-government or e-services to describe the same functions.

167 USAID Digital Ecosystem Framework. Accessed May, 2022 https://www.usaid.gov/digital-development/digital-ecosystem-framework

168 "The e-Government Act, 2019." United Republic of Tanzania. Government Printer. 2019. Accessed June 2022. https://www.ega.go.tz/uploads/publications/en-1632643805-Act.pdf

To operationalize the Act, the e-GA Strategic Plan 2020/21-2025/26[169] launched in April 2021 sets out priorities and an implementation framework. Among the objectives of the strategic plan is to build the capacity of 500 public institutions to deliver e-services by 2026. The Strategic Plan 2020/21-2025/26 is under review and the new target is to get all public institutions to offer e-services within the plan period.[170]

While e-GA sets the framework and develops national digital platforms and websites for national government agencies and ministries, PO-RALG is the bridge to the Local Government Authorities (LGAs) on the digitalization agenda. PO-RALG works with the LGAs to develop and implement digital solutions for citizens, in close collaboration with line ministries. Within this framework, digital government is anchored on a range of digital platforms that provide business-specific solutions. The Muungano[171] Gateway, for example, provides interoperability across all government ministries while ministry-specific gateways cater to specific sectors. A health information mediator caters to the health sector. Development partner projects, such as the USAID PS3+ project on networking, interoperability, and digital systems for local government[172] and the PATH project support health information systems.[173]

To increase adoption, e-GA is working on the user-level challenges faced by citizens. These challenges include inadequate citizen device ownership, low citizen awareness of existing digital solutions, and low digital literacy. People with disabilities were not taken into consideration during the development of digital government services. This is a new focus area.[174]

In developing and promoting the digital solutions, e-GA coordinates with MICIT, which sets the framework for digital infrastructure evolution and universal access to services. At present, Tanzania does not have a policy framework for emerging technologies, including artificial intelligence (AI). MICIT expressed interest in learning from policies and strategies from other countries as a possible building block to developing a national framework on artificial intelligence.[175]

To further engage citizens in governance through digital government, e-GA launched eMrejesho[176] in 2020, a platform that covers all sectors and allows citizens to query whole-of-government agencies. Despite the ambitious program on open digital government, e-GA acknowledges the low awareness of the eMrejesho platform. The Rule of Law Index, as an indicator of open government, reports a low global index for Tanzania at 105 out of 128 countries.[177]

The GoT launched a digital ID initiative to facilitate citizen identification in the online space. The ID issued by NIDA is among the most advanced in Africa (after Nigeria) and is an 80Kb Near Field Communication (NFC) smart card that can in future be used as a mobile wallet. Once registered, the ID holder receives a unique 20-digit unique identifier number linked to an individual's biometric attributes stored in NIDA's databases. By 2021, 74 percent of the population was registered. An evaluation by Research ICT Africa highlighted areas of

169 "eGA Strategic Plan 2020/21-2025/26." e-Government Authority. 2021.https://www.ega.go.tz/uploads/publications/sw-1626945022-e-GA%20Strategic%20Plan-22-06-2021.pdf.

170 Government entity. Interview with DECA Team, August 2022.

171 Swahili for "bringing together union."

172 International development actor. Interview with DECA Team, June 2022.

173 International development actor. Interview with DECA Team, June 2022.

174 Government entity. Interview with DECA Team, August 2022.

175 Government Ministry. Interview with DECA Team, July 2022.

176 eMrejesho website. Accessed June 2022.- https://emrejesho.gov.go.tz/

177 WJP rule of law index. World Justice Project. (2020). Accessed June 20, 2022. https://worldjusticeproject.org/rule-of-law-index/country/2020/Tanzania/Fundamental%20Rights/

weakness in the digital ID[178] framed against the African Union Commission's Draft AU Interoperability Framework for Digital ID that sets out alignment and compliance with international rights and data protection norms. The evaluation identified the potential for exclusion to civic services for those not registered and its no opt-out framework, system insecurity especially in the use of Radio Frequency Identification Technology (RFID), insufficient personal data protection framework since data protection and a data breaches framework were not yet in place, and lack of a redress system.

PUSH FOR LOCALLY DEVELOPED DIGITAL GOVERNMENT SOLUTIONS

The GoT developed digital solutions with in-house preference and[179] PO-RALG built capacity to develop digital solutions starting from a staff strength of 5 to 80 (and now reduced to 40 due to restructuring) competitively hired from among 8,000 applicants in 2019. PO-RALG decided that in-house skills enabled it to easily customize solutions to its needs without licensing obligation challenges.[180]

Tanzania's engagement with the Open Government Partnership (OGP) further demonstrates the evolving government stance on information-sharing. In 2011, for example, the GoT under former President Jakaya Kikwete was among the first governments to join OGP, committing to an open government that is more accessible, more responsive, and more accountable to citizens. OGP's broad partnership includes members at the national and local level as well as CSOs. The unique model ensures that CSOs or direct citizen engagement has a role in shaping and overseeing governments.[181] This commitment changed in 2015, and ended in 2017. Now that the government has committed to reform, civil society, led by Twaweza (a CSO based in Tanzania with a mission to enable incorporation of citizens' voices, interests, and experiences in decision-making across multiple governance levels), called upon Tanzania to rejoin OGP to benefit from collaboration with other governments and civil society keen to promote open government.[182]

IMPORTANCE OF CONTEXT-DRIVEN APPROACHES TO ENSURE INCLUSION, ESPECIALLY AT LOCAL GOVERNMENT LEVEL

In the delivery of e-services and solutions, the eGovernment Act 2019 requires e-GA to "consider impact on persons with limited access to e-services and persons with disabilities (PWDs)" and to provide adequate support systems to the user.[183] Due to gaps in national development, certain communities are not able to use e-services. The range of challenges include:

- Service unaffordability
- Device unaffordability
- Low end technology of customer end device
- Digital illiteracy
- Lack of awareness of digital solutions

178 Boshe, Patricia. "Digital Identity in Tanzania." Research ICT Africa. Accessed May 2022.https://www.africaportal.org/documents/21827/Tanzania_31.10.21.pdf.

179 Government Ministry. Interview with DECA Team, June 2022.

180 It was unclear during interviews if PO-RALG and other GoT entities use open-source solutions and customize to fit their specific needs or if they develop solutions on their own. While these details would be relevant to gaining a deeper understanding of digital public infrastructure, this requires further research.

181 Open Government Partnership. https://www.opengovpartnership.org/about/

182 Eyakuze, Aidan. 2022. ""President Samia and the Open Government Partnership: A Natural Fit."" Twaweza. Accessed September 2022. https://twaweza.org/president-samia-and-the-open-government-partnership-a-natural-fit/.

183 "The e-Government Act 2019." United Republic of Tanzania. Government Printer. 2019. Accessed June 2022. https://www.ega.go.tz/uploads/publications/en-1632643805-Act.pdf.

- Limited or no relevance of the digital solutions being promoted to the community
- Lack of electricity to charge devices.[184]

To address this challenge e-GA set guidelines requiring technology platforms to be inclusive and is now working to ensure that PWDs and the unconnected can benefit from e-government services. Under these guidelines, PO-RALG requires that all systems work in areas without connectivity and power. Such systems should be able to work offline and use off-grid power. Local authorities often print website information and pin it to noticeboards to address the lack of customer end devices.

The e-GA coordinates with MICIT and UCSAF to leverage broadband signal coverage—notably 3G and 4G¸—for e-services.[185] MNOs that are developing user-centric products to encourage the use of digital solutions complement the work of e-GA. Vodacom, for example, launched m-mama with encouragement from e-GA. M-mama is a data-driven solution for rural and semi-rural settings to manage emergency transportation for women in need. In case of an emergency, women call the dispatch centers who use live data analytics to organize essential logistics including ambulance and specialist doctors. In the m-mama pilot phase, 12,000 women used the service, resulting in a reduced mortality rate.[186,187]

Digital government initiatives to engage citizens are not keeping pace with global trends. The 2022 UN E-Government Development Index (EGDI) scored Tanzania 153 out of 193, a drop from 130 in 2016.[188] The EGDI assesses e-government development at the national level, reflecting how a country uses telecommunications infrastructure, human capital, and online service assessment to promote inclusion and access. In the same survey, citizen participation fares better comparatively with a 2022 E-participation Index score at 128 out of 193 countries, a drop from 67 in 2016. The E-Participation Index is an assessment of the quality and usefulness of information and services provided by a country for the purpose of engaging its citizens in public policymaking using e-government programs. It is a composite measure of e-information (enabling participation by providing public information) e-consultation (engaging citizens in contributions) e-decision-making (empowering citizens through co-design of policy options). Tanzania scores on e-information, e-consultation and e-decision making dropped under former President Magufuli, reflecting the constricted digital space.

LESSONS FROM THE HEALTH SECTOR ON INTEROPERABILITY, LOCALIZATION, AND STANDARDIZATION

Sizable health investments over the past two decades led to significant duplication and fragmentation of efforts and systems.[189] Current investments in Tanzania's digital health sector are aimed at remedying the historically siloed approach, there are lessons to be learned from how this undertaking is being approached.[190,191] Lessons can be learned in the following areas of digital systems development:

184 "Tanzania: Driving social and economic value through mobile-sector tax reform." GSMA. 2021. Accessed June 2022. https://www.gsma.com/publicpolicy/wp-content/uploads/2021/04/GSMA_Mobile_taxation_in_Tanzania_2021.pdf.

185 Government Ministry. Interview with DECA Team, August 2022.

186 MNO. Interview with DECA Team, July 2022.

187 "Mobile maternity transport service m-mama set to expand across Tanzania as new $10m investment launched by Vodacom Tanzania Foundation." Vodafone Foundation news. 2022. Accessed June 2022. https://www.vodafone.com/news/vodafone-foundation/m-mama-expands-nationally-in-tanzania.

188 "EGOVKB - Tanzania." UN Department of Economic and Social Affairs. 2022. EGOVKB | United Nations > Data > Country Information. Accessed June 2022. https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/183-United-Republic-of-Tanzania

189 "A Vision for Action in Digital Health" (USAID, 2020), https://www.usaid.gov/policy/digital-health-vision.

190 USAID/Tanzania Meeting, November 2022.

191 International development actor. Interview with DECA Team, June 2022.

- **Systems architecture:** A systems strengthening approach is key to rectifying years of challenges around duplication and fragmentation. The 2020 to 2025 Public Sector Systems Strengthening Plus (PS3+) activity is an example of a project working closely with various government entities across sectors to enhance management systems, especially on the local village level.[192] An interviewee from the PS3+ activity expressed that there has been a lot of change, but it is now time to institutionalize that change.[193] The Health Information Mediator (HIM), developed in 2019,[194] is an essential element of Tanzania's integrated systems architecture. It facilitates data exchange across multiple, enabling the seven largest national hospitals to share patient data using a central data repository.[195]
- **Data-driven decision-making:** There is an effort in the health sector to create best practices in data for decision-making with an emphasis on root cause analyses. For example, Data.FI develops technology-enabled data analytics and visualization platforms that integrate data from multiple sources.[196] The goal is to improve data quality, use, and access.[197]
- **Workforce planning:** There is an opportunity to use digital solutions in workforce planning to strengthen data-driven decision-making. The Touch Foundation collaborated with Data.Fi to create the Human Resources for Health (HRH) solution. It uses existing data to analyze staffing gaps and costs and looks at options for new hires or redistribution of staff with the goal of optimizing staff allocation to control HIV/AIDS.[198] An interviewee from the Touch Foundation spoke to the strong appetite within both the Ministry of Health and especially in PO-RALG for these types of solutions. Private sector healthcare entities have also expressed interest and Touch Foundation may use the same system with them.[199]
- **Sustainability through government ownership:** a theme from interviews with development partners in the digital health sector is that digital systems are developed, from the outset, with government counterparts in the driver's seat. One interviewee noted that coordination is paramount and with stronger governance structures comes better coordination.[200] The Unified Community System (UCS), developed in 2022 building on the community App, is an example of how the government has taken the lead in ensuring the community health information system platform that is in development focuses on use cases. The UCS offers modules that are aligned with government priorities rather than with disperate health programming siloes.[201] One development partner shared that most modules were developed with both the government and their identified technical partners.[202] Additionally, in 2019, USAID/Tanzania' s Maternal and Child Survival Program (MCSP) ensured that the Ministry of Health led the HIM implementation.[203] In some cases, this includes embedding technical experts in government counterpart offices to ensure technical capacity and knowledge is transferred

192 "Public Sector Systems Strengthening Plus (PS3+): Fact Sheet: Tanzania," U.S. Agency for International Development, December 22, 2022, https://www.usaid.gov/tanzania/fact-sheet/dec-22-2022-public-sector-systems-strengthening-plus-ps3.

193 International development actor. Interview with DECA Team, June 2022.

194 "Health Information Systems MCSP Tanzania Program Brief." USAID Maternal and Child Survival Program: USAID. May 2019. "https://pdf.usaid.gov/pdf_docs/PA00TXWD.pdf

195 "Tanzania Deploys the Most Advanced Health Information Exchange in sub-Saharan Africa." USAID Maternal and Child Survival Program. April 26, 2019. : https://www.mcsprogram.org/tanzania-deploys-the-most-advanced-health-information-exchange-in-sub-saharan-africa/

196 "Epidemic Control Rooms." DataFi Solutions Brief. 2021. DataFi.https://datafi.thepalladiumgroup.com/wp-content/uploads/2020/03/Data.FI-Solution-Brief-Epidemic-Control-Rooms-Brief-v1.pdf

197 Independent expert. Interview with DECA Team, July 2022.

198 Human Resources for Health Needs and Optimization Planning Solution." DataFi Solutions Brief. February 2, 2021. Data Fi. https://datafi.thepalladiumgroup.com/wp-content/uploads/2021/02/Data.FI_Human-Resources-for-Health-Optimization-Solution_SB-20-04.pdf

199 International development actor. Interview with DECA Team, June 2022.

200 International development actor. Interview with DECA Team, June 2022.

201 "USAID AFYA YANGU NORTHERN FY22 Q4 and ANNUAL PROGRESS REPORT FY22." USAID. October 30, 2022. https://pdf.usaid.gov/pdf_docs/PA00ZN9Q.pdf

202 International development actor. Interview with DECA Team, July 2022.

203 "Health Information Systems." USAID Maternal and Child Survival Program. May 2019. https://pdf.usaid.gov/pdf_docs/PA00TXWD.pdf

and sustained.[204],[205] An interviewee from the PS3+ activity noted that successful digital systems require three ingredients: people, systems, and technology with sufficiently skilled people being the most influential element. The activity has transferred the management of the PlanRep system to the government and the PS3+ team simply provides support when technical issues arise.[206]

- **Interoperability:** The siloed systems of the past influenced current work to emphasize interoperability. One partner noted that previously different donors supported projects that operated on different systems and hardware, which made operations challenging.[207] Both eGA and development partners developing digital health systems stress the importance of interoperability. eGA coordinates systems development across government entities and facilitates the shared use of good systems.[208] The HIM, an interoperability layer that supports data exchange between systems, is a strong example of improved interoperability in the health sector.

2.4 GOVERNMENT CYBERSECURITY CAPACITY IN EARLY STAGES OF DEVELOPMENT

Tanzania launched the National Cyber Security Strategy 2018-2023 (NCSS) in April 2018 as required in the National ICT Policy 2016. The NCSS builds on the Cybercrimes Act 2015, and the Electronic Transactions Act 2015 on online activity. The NCSS outlines a framework to detect and combat cyber threats and create a secure cyberspace for businesses and communities working in concert with multiple stakeholders.

KEY TERMS | BOX 7: Cybersecurity, Cyber risks, and Digital trust

Cybersecurity is the activity or process, ability or capability, or state whereby information and communications systems that support or affect development outcomes, and the information contained therein, are protected from and defended against damage, unauthorized use or modification, or exploitation.

Cyber risks are the potential for financial loss, disruption, or damage to the reputation of an individual, organization, or Government from failure, unauthorized or erroneous use, or other malicious exploitation of its information systems.

Digital Trust is created when users have confidence in an online system, network, or technology and trust that their data and privacy are being protected when using them.

CSIRT (Computer Security Incident Response Team) and CERT (Computer Emergency Response Team): these terms are often used interchangeably though they have slightly distinct definitions. Both refer to organizations that are responsible for coordinating and supporting the response to a computer security event or incident. They are responsible for detecting, mitigating, documenting, analyzing, reducing, and reporting cyber threats and vulnerabilities. The term CERT is a designation that was formalized by Carnegie Mellon University in 1997. CERTs tend to have a greater emphasis on partnership with internal or external teams and more of a focus on emerging threat research and on improving incident response as a discipline. However, these differences are slight and often by definition only.[209]

Source: USAID Cybersecurity Primer [210]

204 International development actor. Interview with DECA Team, June 2022.

205 International development actor. Interview with DECA Team, June 2022.

206 International development actor. Interview with DECA Team, June 2022.

207 International development actor. Interview with DECA Team, June 2022.

208 International development actor. Interview with DECA Team, July 2022.

209 CERT vs. CSIRT vs. SOC: What's the difference?, Accessed July 25, 2022, https://www.techtarget.com/searchsecurity/tip/CERT-vs-CSIRT-vs-SOC-Whats-the-difference#:~:text=CSIRTs%20and%20CERTs%20focus%20specifically,a%20cross%2Dfunctional%20business%20team.

210 USAID Cybersecurity Primer. Accessed June 14, 2022, https://www.usaid.gov/digital-development/usaid-cybersecurity-primer

The NCSS outlines the institutional relationships and responsibilities to detect and mitigate cyberthreats with e-government Cybersecurity, Tanzania Computer Emergency Response Team (Tz-CERT), and the Tanzania Police Force's cyber crime unit taking the lead in a multi-stakeholder process. The NCSS cites private sector and other agencies as partners; the limited access to the NCSS suggests gaps in implementation of the strategy.

Tz-CERT, established under EPOCA 2010 and managed by TCRA, is the focal point for coordination of response to cybersecurity incidents with national and international organizations.[211] Tz-CERT provides periodic reports, shares security advisories, and if Tz-CERT "...see threats coming, who are targeted, we immediately disseminate information, what type of threat, what is the threat trying to exploit, if there is vulnerability, give guideline on how to address the vulnerability that is exploited."[212] TISPA confirmed this activity by Tz-CERT but stated that some member ISPs do not have the capacity to respond or if they responded there was no framework for feedback on action taken. Tz-CERT promotes the establishment of sectoral CERTs to address unique sectoral needs in finance, telecommunications, academia, and business among others, although it did not cite any sectoral CERT established under its support.

The Tz-CERT system operates a network of HONEYPOT sensors,[213]a system working as bait to trap hackers and intended to attract cyberattacks like a decoy and using intrusion attempts to gain information about cybercriminals. Tz-CERT deployed Honeypot in strategic locations and in critical information infrastructure (CII). The deployment was initially supported by the International Telecommunications Union (ITU) under an arrangement with Impact from Malaysia in 2013. Today, the community being served has grown and maintaining the sensor network requires payments of annual license fees. TCRA intends to leverage the increased number of security experts and internal technical capacity to discontinue relying on the proprietary sensors and build sensors locally.[214]

Despite TCRA's optimism on national cybersecurity capacity, gaps exist. TCRA indicated that the country needs additional training on cybersecurity, a position reiterated by e-GA and ISACA Tanzania Chapter. The e-GA acknowledged the global challenge of cybersecurity and the need to continuously enhance skills, and has set standards for government agencies. ISACA cited talent pool deficits and gaps in the cybersecurity body of knowledge, noting that only a few universities offer Masters level cybersecurity degrees. The interviewee also emphasized that the private sector takes breaches seriously, but individuals do not dedicate sufficient attention to protecting their cybersecurity until an incident occurs.[215]

Tanzania has mixed positions on international cybersecurity benchmarks. ITU ranks Tanzania highly on the Global Cybersecurity Index (GCI) at 37 globally and second in Africa only after Mauritius.[216] The high ranking is attributed to cooperative and legal measures identified by the GCI. At variance with GCI, the National Cybersecurity Index (NCSI) with 12 focus areas presents a different perspective, ranking Tanzania at 109 out of 161 countries globally.[217] The NCSI cites policy development, threat analysis, sharing information, protection of essential services, protection of personal data, and cyber crisis management as key areas of weakness. The

211 Tanzania Computer Emergency Response Team (Tz-CERT). Accessed June 2022. https://www.tzcert.go.tz/about-us/

212 Government entity Interview with DECA Team, June 2022.

213 "What is a honeypot? How honeypots help security." AO Kaspersky Lab. 2022. Accessed September 2022. https://www.kaspersky.com/resource-center/threats/what-is-a-honeypot.

214 Government entity. Interview with DECA Team, June 2022.

215 Civil society organization. Interview with DECA Team, July 2022.

216 "Cybersecurity is a key for Development – Tanzania Ranks 2nd in Africa." TCRA News. 2021. Tanzania Computer Emergency Response Team. Accessed June 2022. https://www.tzcert.go.tz/cybersecurity-and-safety-key-for-development-tanzania-ranks-2nd-best-in-africa/.

217 e-Governance Academy Foundation. 2022. "NCSI :: Tanzania, United Republic of." National Cyber Security Index (NCSI). Accessed June 2022. https://ncsi.ega.ee/country/tz/.

policy development metric includes sub-indicators on cybersecurity strategy and its implementation plan, which scores poorly, suggesting that NCSI is not currently aware of the existence of NCSS.

The NCSS recognizes that cybersecurity threats are global phenomena and commits to working with regional and international organizations. Tanzania has yet to accede to the African Union Convention on Cyber Security and Personal Data Protection (Malabo Convention)[218] or to the Budapest Convention on Cybercrime.[219] Collaboration under Malabo Convention and Budapest Convention on Cybercrime supports capacity to secure Tanzanian cyberspace. TCRA indicated that the government is keen to accede to the Malabo Convention and that at the time of this research, a delegation was engaging the African Union Commission (AUC) regarding accession to the Malabo Convention.[220]

218 "African Union Convention on Cyber Security and Personal Data Protection (Malabo Convention)." African Union Commission. 2014. Accessed May 2022. https://au.int/sites/default/files/treaties/29560-treaty-0048_-_african_union_convention_on_cyber_security_and_personal_data_protection_e.pdf.

219 The Budapest Convention (ETS No. 185) and its Protocols. Accessed June 2022. https://www.coe.int/en/web/cybercrime/the-budapest-convention

220 Government entity. Interview with DECA Team, June 2022.

PILLAR 3: DIGITAL ECONOMY

Digital Economy explores the role digital technology plays in increasing economic opportunity and efficiency, trade and competitiveness, and global economic integration. Areas of inquiry include digital financial services (credit or debit cards, payment apps, mobile money, and digital savings and loan products), financial inclusion, regulation of digital finance, digital trade, e-commerce, and the financial technology (FinTech) enabling environment. This pillar also assesses strengths and weaknesses in the local digital talent pool and the tech startup environment; a healthy digital economy requires a supply of ICT skills that matches the demand and an ecosystem that promotes technological innovation.

KEY TAKEAWAYS: DIGITAL ECONOMY

FINDINGS

- **Despite regulatory gaps, Tanzania has a conducive regulatory environment for digital financial services (DFS)** and mobile financial services continue to spur sustained adoption. Digital savings and lending are proving to be compelling use cases. The payment infrastructure is well established, including account-to-account interoperability, but taxes on DFS are detrimental to ecosystem growth.
- **Alternative distribution channels targeting the last-mile have increased DFS reach, but some rural areas remain underserved.** There are some concerted efforts to reach underserved population segments including women, youth, rural dwellers, and low-income earners.
- **Tanzania is home to an active tech startup ecosystem, but growth is hampered** by policy and regulatory vacuums, limited funding, and uncoordinated enablers.
- **E-commerce is slowly gaining ground,** but gaps in the policy and regulatory landscape may delay growth.
- **Initiatives to support the growth of the digital talent pool are diverse** but siloed and there are no modalities for assessing progress .

RELEVANT RECOMMENDATIONS

1. Support the enabling environment for digital financial services by strengthening regulatory capacity for oversight and ease of doing business
2. Boost the digital talent pool by creating digital telecenters and community ICT and cybersecurity labs, especially in peri-urban and rural areas
3. Increase the efficiency of the tech startup ecosystem through coordination and specialization
4. Advance digital trade and e-commerce through technical assistance for policy development and capacity building

INTRODUCTION

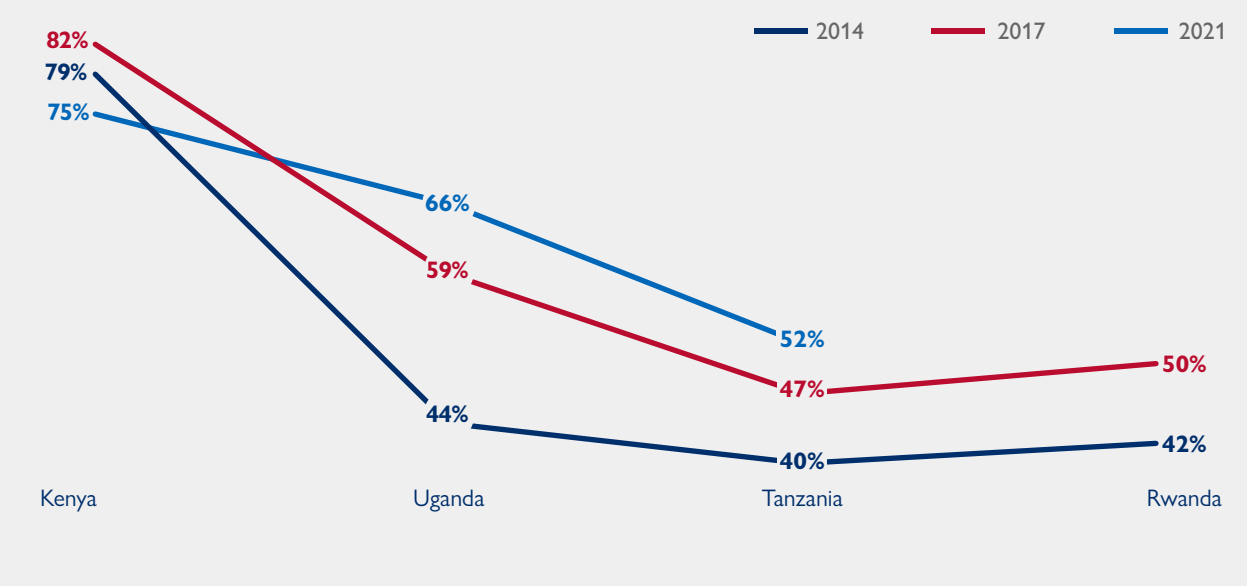
Tanzania's digital economy is evolving and has made great strides in line with the Development Vision 2025, which advocates for persistent harnessing of ICTs across all sectors of the economy.[221] Mobile financial services are at the forefront of driving uptake and use of digital financial services (DFS), with stiff competition between MNOs, banks, and other non-bank payment service providers (PSPs). The technology startup ecosystem is flooded with innovation hubs, incubators, and accelerators. However, only a few viable, well-established businesses emerge from such programs. E-commerce and digital trade are showing early signs of growth despite the lack of government strategies, policies, or regulations. There are notable gaps in the digital talent pool, especially between genders and in rural areas not adequately covered by physical and internet infrastructure. Opportunities exist to reform the regulatory landscape and integrate digitalization across key value chains.

221 "The Tanzania Development Vision 2025." n.d. Tzonline.Org. Accessed August 14, 2022. http://tzonline.org/pdf/theTanzaniadevelopmentvision.pdf.

3.1 DIGITAL FINANCIAL SERVICES PROGRESSING TOWARD MARKET MATURITY

According to the World Bank Global Findex 2021, 52 percent of the adult population (above 15 years) in Tanzania have formal financial accounts, with 23 percent of these accounts in financial institutions. This proportion is comparatively lower than in Kenya, Uganda, and Rwanda.[222]

FIGURE 14: Comparison of Percentage of Population with Accounts (Age 15+)



**Note: Rwanda 2021 data is not available on Global Findex*[223]

MOBILE FINANCIAL SERVICES SPUR DIGITAL FINANCIAL SERVICES

Mobile Money continues to thrive in Tanzania. Launched in 2008, mobile money unlocked digital financial solutions, bringing financial services to millions of people who were previously excluded. At the start, demand was driven by the large unbanked population, strong mobile market penetration, and a relatively young population that was more likely to be early adopters of new technology.

An amendment to the Banking Act in 2006 gave the Bank of Tanzania (BoT) the power to oversee and regulate non-bank entities offering payment services. Following the successful launch and uptake of M-PESA in Kenya, the BoT adopted a test-and-learn approach to iterate and monitor deployment of DFS in Tanzania. MNOs were initially required to partner with banks under the BoT's letter of no objection to ensure protection of consumer funds.[224] Currently, the mobile financial services space is highly competitive, with five MNOs as well as other FinTechs and payment system operators offering service options.

Mobile Money is a key driver of digital financial services, contributing over 60 percent to the use of DFS compared to other channels.[225] Uptake has grown steadily. According to the BoT, since inception, over 272 million mobile payment transactions worth USD $4 million were conducted as of December 2021.[226]

222 "The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19." 2022. Worldbank.Org. June 30, 2022. https://www.worldbank.org/en/publication/globalfindex.

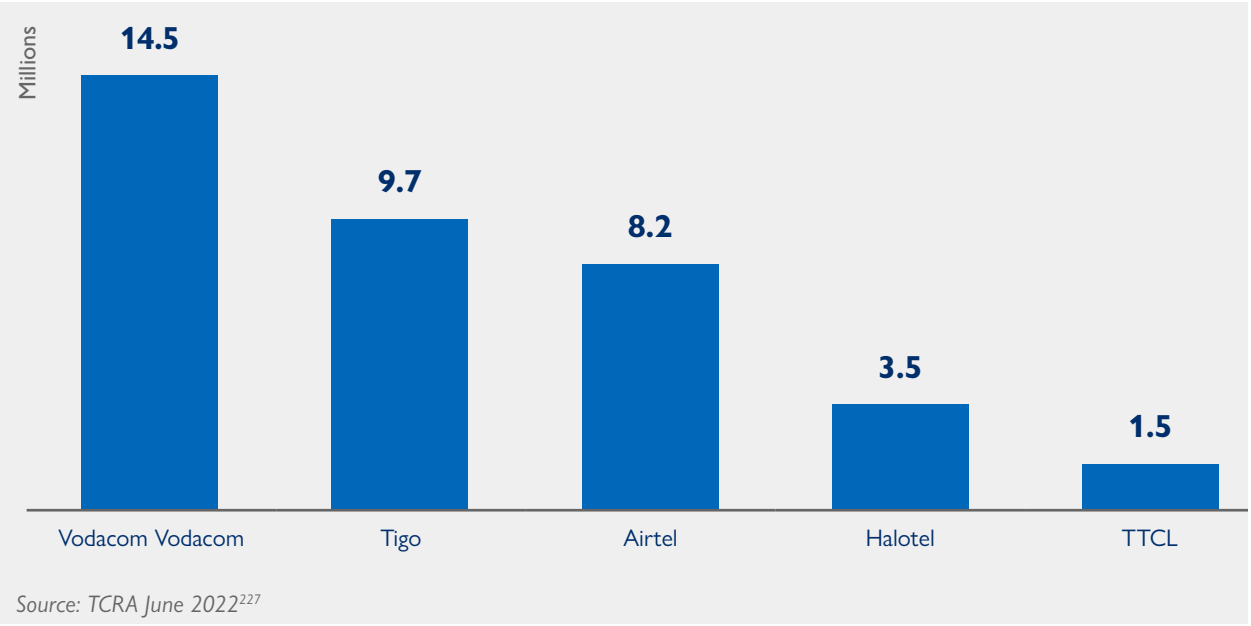
223 Demirguc-Kunt et al., "The Global Findex Database 2021," World Bank Group, July 2022. https://www.worldbank.org/en/publication/globalfindex.

224 Ephraim, Innocent, and Daniel Mhina. 2017. "The Story of Digital Finance in Tanzania: FSDT Case Study." FSDT. June 2017. https://www.fsdt.or.tz/wp-content/uploads/2021/05/FSDT_DFS_CaseStudy.pdf.

225 "Finscope Tanzania 2017: Insights that Drive Innovation." n.d. Tanzania Deepening Trust Fund. Accessed August 14, 2022. https://www.nbs.go.tz/nbs/takwimu/references/FinScope_Tanzania_2017.pdf.

226 "Laws and Regulations." n.d. Bank of Tanzania. Accessed September 8, 2022. https://www.bot.go.tz/BankSupervision/Regulations.

FIGURE 15: Tanzania Mobile Money subscriptions as of June 2022 , by MNO



Source: TCRA June 2022[227]

While a comparison with banking and other PSPs would have been ideal, consolidated figures for the same time period are unavailable.

CONDUCIVE REGULATORY ENVIRONMENT WITH ROOM FOR GROWTH

The regulatory environment for DFS is conducive to growth and innovation, and the BoT is vested with the National Payment Systems (NPS) Act 2015 and the Banking and Financial Institutions Act 2006 to regulate and supervise the payment systems services and products offered by both banks and non-bank institutions. The BoT collaborates with stakeholders, including bank financial institutions, payment providers, regulatory authorities, regional participants, and multilateral development institutions to maintain financial stability in the country.[228]

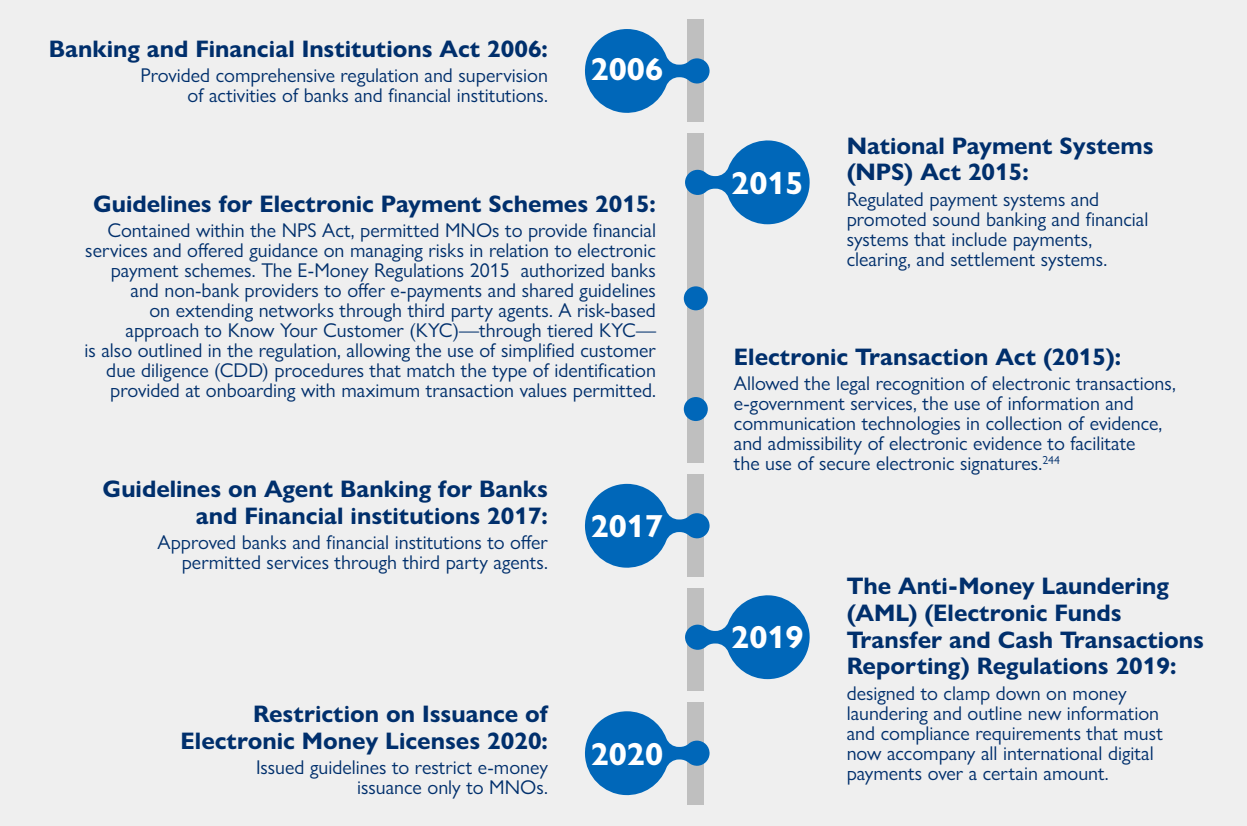
In 2015, banks and non-bank PSPs were permitted to issue e-money. However, in December 2020, non-bank e-money issuance licenses were restricted to MNOs. This effectively locks out other categories of PSPs such as payment system operator and FinTechs. According to the BoT, e-money issuers that are subsidiaries of telecommunication companies are licensed under the E-Money Regulations, 2015. Prudential regulations require such e-money issuers to set up trustee accounts with selected commercial banks to hold reserves equal to defined ratios of customer deposits to mitigate financial risks to the economy. FinTechs and other non-bank providers (except MNOs) are not covered under such regulations and are therefore not permitted to directly accept deposits.[229] While the actual impact of this measure is yet to be assessed, non-bank PSPs especially FinTechs reiterated the significance of a competitive ecosystem where players can receive various licensing categories independent of major players namely banks and MNOs.

227 "Quarterly Communications Statistics." n.d. Tanzania Communications and Regulatory Authority. Accessed August 13, 2022. https://www.tcra.go.tz/uploads/text-editor/files/TelCom%20Statistics%20March%202021_1623060175.pdf.

228 "Laws and Regulations." n.d. Bank of Tanzania.

229 Government entity. Interview with DECA Team, June 2022.

FIGURE 16: Timeline of regulations related to digital financial services



KEY TERMS | BOX 8: Regulatory Sandbox

A regulatory sandbox is a framework put in place by the regulator, permitting financial entities to experiment with innovative products, services, and business models in a controlled environment with targeted regulatory and supervisory policies. A sandbox can be seen as a signal to innovators in the financial sector that regulators are willing to engage.

Various regulatory sandboxes are in the pipeline, including a FinTech sandbox. The BoT indicated that regulatory sandbox principles have been in practice. The BoT permits FinTechs with viable product propositions to conduct pilots and operate under the license of a bank, particularly when FinTechs accept deposits from customers. PSP interviewees stated that while a FinTech sandbox is welcome, it is a lower priority than addressing independent licensing for PSPs.[230]

The National Financial Inclusion Framework (NFIF) II 2018-2022 guides financial inclusion activities and seeks to improve addressability, uptake, use, and satisfaction. Notable progress has been made in key pillars including increasing access to digital identification, expanding cross-channel payment interoperability, growing rural agent network coverage, and driving innovation for market awareness.[231] It is unclear if and when this framework will be updated.

LIMITED USE OF TECHNOLOGY IN REGULATORY PROCESSES

There are only a few applications of RegTech and SupTech (see Key Terms Box 9) and limited understanding of emerging technologies in oversight functions. PSP use of RegTech to meet regulatory requirements is also minimal, such as in the reporting of payment activities and suspicious transactions. The BoT is open to increasing

230 Government entity. Interview with DECA Team, June 2022.

231 "National Financial Inclusion Framework (NFIF) 2018 – 2022." 2019. FSDT. January 31, 2019. https://www.fsdt.or.tz/national-financial-inclusion-framework-nfif-2/.

the use of such technologies, particularly through skill development and partnerships with the private sector and development partners.[232]

KEY TERMS | BOX 9: RegTech and SupTech

Regulatory Technology (RegTech) is the management of regulatory processes within the financial industry through technology. The main functions of RegTech include regulatory monitoring, reporting, and compliance.

Supervisory Technology (SupTech) is the use of innovative technology by supervisory agencies within the financial industry to support supervision. It helps such agencies to digitize reporting and regulatory processes, resulting in more efficient and proactive monitoring of risk and compliance at financial institutions. Several supervisory agencies are already using innovative ways to effectively implement a risk-based approach to supervision.

MULTIPLE TAXES ON DFS CONSIDERED DETRIMENTAL TO ADOPTION AND USE

With the expansion of DFS, especially mobile money, some governments in other countries levied taxes directly on transactions and other charges.[233] In Tanzania, mobile technology is one of the most heavily taxed sectors, with reportedly at least 10 different taxes in addition to regulatory fees and charges. In 2015, taxes accounted for about 35 percent of the costs of mobile ownership on devices, subscription, and usage, which constituted the second highest rate in Africa and almost double the global average.[234] This is a prohibitive factor in device ownership. Taxes introduced in mobile financial services to date are detailed in Table 7.

TABLE 7: Taxation of Digital Services

TAXABLE ITEM	YEAR INTRODUCED	RATE
Applied to all charges or fees payable to banks or non-bank financial institutions, including for money transfer	2014	10%
Applied to electronic mobile money transfer and withdrawal transactions; varies depending on the amount withdrawn	Amended 2021	TZS 7-7,000 (USD 0-3)
Applied to fees for money transfer and payment service payable to telecommunication service providers	2014	10%
Applied to commissions paid to money transfer agents, commercial bank agents, or digital payment agents	2013	10%
Applied to charges or fees payable to banks, non-bank financial institutions, or telecommunication service providers	2021	18%
Proposed levy between each mobile money transaction (sending and withdrawing)	2021	TZS 10-10,000 (USD 0-4.28)
Proposed reintroduction of daily SIM card levy upon balance recharge	2021	TZS 10-223 per recharge (USD 0-1)

Sources: ICDT (2018);[235] Gilman (2016)[236]

232 Government entity.. Interview with DECA Team, July 2021. Online.

233 Elias Biryabarema and Joe Bavier, "Tax Byte - Africans Fear Trend towards Levies on Data, Services" (Thomson Reuters, October 18, 2018), https://www.reuters.com/article/uk-africa-telecoms-taxation-insight-idUKKCN1MS0NX.

234 "Digital Inclusion and Mobile Sector Taxation in Tanzania." n.d. Gsma.Com. Accessed September 8, 2022. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/01/Digital-inclusion-mobile-sector-tax-Tanzania.pdf.

235 "Enablers, Barriers and Impacts of Digital Financial Services: Insights from an Evidence Gap Map and Implications for Taxation," ICTD. June 16, 2022,https://www.ictd.ac/publication/enablers-barriers-and-impacts-of-digital-financial-services-insights-from-an-evidence-gap-map-and-implications-for-taxation/.

236 Gilman, Lara. 2016. "The Impact of Mobile Money Interoperability in Tanzania: Early Data and Market Perspectives on Account-to-Account Interoperability." Gsma.Com. September 2016. https://www.gsma.com/mobilefordevelopment/resources/the-impact-of-mobile-money-interoperability-in-tanzania-early-data-and-market-perspectives/.

The levy introduced and reviewed in July 2021 on mobile money transfers and withdrawal transactions, (excluding merchant, business and government payment transactions) effectively increased average transaction fees by up to 369 percent, depending on the transaction value.[237] According to a PSP, transaction fees are high and recent tax measures exacerbated the situation. Following the July 2021 levy, there was an almost immediate 40 percent reduction in transaction volume and a 20 percent reduction in mobile money revenue for all MNOs across the country. Although the government then reduced the taxes by 30 percent, the resulting impact reversed gains made in DFS adoption and use by three to five years. Recovery will take a long time and MNOs are engaging with the government to come up with appropriate remedial measures.[238]

Additional taxes have been proposed including a two percent tax on the revenues of non-resident digital platforms (platforms offered by companies not incorporated in Tanzania that receive payments originating from Tanzania for services rendered through a digital marketplace).[239] A PSP interviewee indicated that this directive had some gray areas. For example, it was unclear how the two percent tax would be collected, how data supporting this effort would be generated, and how the basis of taxation would be determined. In some cases, there could be confusion as gross revenue from financial transactions is not always a clear measurement due to factors like zero-rated transactions and advertisement-generated revenue. While the government's need to gain additional revenue streams was acknowledged, interviewees from the public and private sectors indicated that the current tax regime reverses gains made in growing the digital economy. They felt that the focus should be on growing the ecosystem and improving affordability of digital services rather than on increasing government revenue in a manner that hampers growth.[240]

In response to these sentiments, in September 2022, the Ministry of Finance and Planning (MoFP) announced a reduction in transaction fees that would take effect on October 1, 2022. Fees levied on intrabank and interbank transactions, bank to mobile, and mobile to bank would be waived. A tax holiday on merchant services outlined in the Electronic Money Transaction Levy Regulations 2021 would continue. The mobile money tax levied on cash-outs from bank agents and Automated Teller Machines (ATMs) below TZS 30,000 was reduced from TZS 7,000 to 4,000. The Government added that these measures were taken to address reduction of the burden of tax and levies on citizens, encourage usage of digital payments, simplify tax collection, and avoid double taxation for all parties. [241]

ADVANCES IN INTEROPERABILITY ARE MOSTLY SUCCESSFUL BUT THERE ARE OPPORTUNITIES TO EXTEND THESE TO MERCHANT AND CROSS-BORDER USE CASES

Tanzania was a pioneer in market-led account-to-account domestic interoperability through bilateral agreements between providers. Account-to-account interoperability enabled transfer of funds across MNO providers originating from their own networks to others at the same cost.[242]

237 "Tanzania Mobile Money Levy Impact Analysis (1st July 2021 - 31st March 2022)," Public Policy, June 27, 2022, https://www.gsma.com/publicpolicy/resources/tanzania-mobile-money-levy-impact-analysis-1st-july-2021-31st-march-2022.

238 MNO. Interview with DECA Team, September 2022.

239 The Minister for Finance and Planning of the United Republic of Tanzania. 2022. Transcript of speech delivered at Dodoma. June 14, 2022. https://www.mof.go.tz/uploads/documents/en-1655219417-SPEECH%20OF%20GOVERNMENT%20BUDGET%20FOR%202022-23%20ENGLISH%20VERSION.pdf.

240 Government entity. Interview with DECA Team, June 2022. Online.

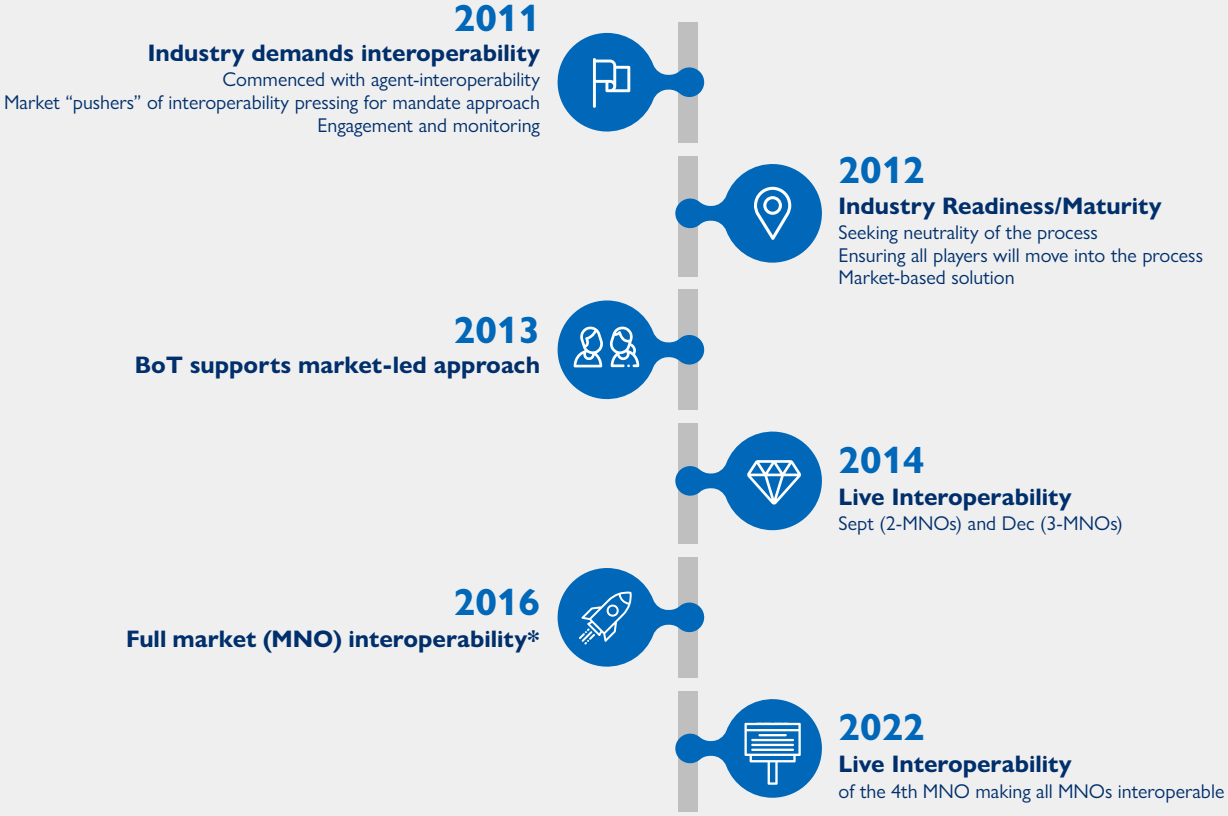
241 Materu, Beatrice. "Tanzania Scraps Fees on Electronic Transactions." September 21, 2022. www.theeastafrican.co.ke/Tea/Business/Tanzania-Scraps-Fees-on-Electronic-Transactions-3956096

242 "Achieving Interoperability in Mobile Financial Services: Tanzania Case Study." n.d. Ifc.Org. Accessed September 8, 2022. https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/financial+institutions/resources/achieving+interoperability+in+mobile+financial+services+tanzania+case+study.

"Interoperability does not solve financial inclusion but creates room for efficient service provision."
—Martin Warioba (WS Consulting, Tanzania)

The BoT played a critical role in encouraging discussions between mobile money providers. The International Finance Corporation (IFC), supported by the Bill & Melinda Gates Foundation and the Financial Sector Deepening Trust in Tanzania (FSDT), facilitated most of the industry discussions that led to the launches.[243]

FIGURE 17: Timeline of Tanzania DFS Interoperability



**For MNO's that were present in the market at the time*
Source: Adapted from Alliance for Financial Inclusion (AFI), 2016[244]

The success of interoperability in Tanzania is attributed to several factors: a market-based approach as opposed to a regulator-led approach to interoperability; a conducive regulatory framework and buy-in from the regulator; a sufficient level of market competition and maturity; the consideration of value proposition for the private sector; and the enhancement of private and public sector dialogue through the public policy lens of financial stability and financial inclusion.[245] While some interviewees indicated that interoperability unlocked the market value proposition for users to affordably transfer funds across networks,[246] others indicated that it did not actually lead to much growth. Interoperability has not been revisited for MNOs such as Halotel and TTCL that entered the market

243 Private sector startup. WS Ventures. Interview with DECA Team, June 2022.

244 Komba, Kennedy. 2016. "Interoperability of Digital Financial Services in Tanzania." Afi-Global.Org. August 17, 2016. https://www.afi-global.org/newsroom/blogs/interoperability-of-digital-financial-services-in-tanzania/

245 Komba, Kennedy. 2016. "Interoperability of Digital Financial Services in Tanzania." Afi-Global.Org. August 17, 2016. https://www.afi-global.org/newsroom/blogs/interoperability-of-digital-financial-services-in-tanzania/

246 Private sector startup. Interview with DECA Team, June 2022.

after agreements were signed. Use cases have not advanced beyond MNO account-to-account and merchant payments while other payment types, such as utility and cross-border payments, are not included.[247]

PAYMENTS INFRASTRUCTURE IS WELL-ESTABLISHED BUT MERCHANT INTEROPERABILITY REMAINS A CHALLENGE

The Tanzania Instant Payment System (TIPS) is a home-grown national payment gateway under the oversight of BoT. It is currently in the pilot phase, but once fully rolled out it will include all licensed payment providers and offer multiple channels. The BoT piloted TIPS with three banks and two MNOs. Subsequent pilot phases will include government and merchant Quick Response (QR) code payments. The platform aims to be inclusive, cost effective, and to minimize barriers to entry for PSPs. The commercial launch is expected in early 2023.[248]

Government payments and collections including person-to-government (P2G) and business-to-government (B2G) payments are digitalized with notably strong/solid uptake. Individuals and small businesses can make digital payments to the government for service fees, fines, and taxes. Similarly, government-to-person (G2P) payments, mainly for social protection under the Tanzania Social Action Fund (TASAF) III Productive Social Safety Net (PSSN) Programme, are disbursed via digital channels, resulting in increased convenience for users as well as efficiency and cost savings for the government.[249]

The BoT pointed to an increase in demand for merchant services, demonstrated by increased applications for merchant licensing. The BoT also highlighted the growth potential for merchant payments despite the lack of interoperability and the high acquisition cost of Point-of-Sale (PoS) devices.[250] However, UNCDF indicated that merchant payments are still heavily cash-based and that in instances where mobile money is used, transactions are of a P2P nature and not through an integrated service thus not realizing the benefits of merchant services. Efforts have been made toward implementing merchant interoperability, but it has not yet become operational. Merchants currently use devices from each participating operator, with separate agreements and reconciliation processes.[251] Interoperability would enable the use of one integrated device for various providers.

DIGITAL LENDING IS REVOLUTIONIZING ACCESS TO CREDIT

Digital technology revolutionized access to credit through solutions such as M-PAWA, Songesha, Timiza, Nivushe, and pay-as-you go models including M-KOPA and BBOX. Banks such as FINCA and NMB are increasingly offering sector-based digital lending products, previously a reserve of MNOs and FinTechs. Alternative credit scoring, which utilizes technologies such as machine learning to assess credit risk, has reduced reliance on collateral-based lending for lower loan thresholds. On the downside, digital lending also potentially poses predatory lending risks with emerging business models founded on high interest rates and recovery mechanisms that go against consumer protection guidelines. This trend is evident across the East African region, leading countries such as Kenya to institute digital credit providers regulations in March 2022.[252]

M-PAWA, launched by Vodacom in partnership with the Commercial Bank of Tanzania, was one of Tanzania's pioneer digital savings and lending products. It mostly relies on alternative credit scoring to assess the credit worthiness of MNO customers with the aim of advancing low value loans granted at nine percent interest over

247 Private sector financial entity. Interview with DECA Team, July 2022.

248 Government entity. Interview with DECA Team, July 2022. Online.

249 International organization. Interview with DECA Team, June 2022.

250 Government entity. DECA Team, July 2022. Online.

251 International organization. Interview with DECA team, June 2022.

252 "Central Bank of Kenya (Digital Credit Providers) Regulations 2022," Central Bank of Kenya, March 18, 2022, https://www.centralbank.go.ke/2022/03/21/central-bank-of-kenya-digital-credit-providers-regulations-2022/.

a 30-day period.[253] Under USAID/Tanzania's Farmer to Farmer program, the International Executive Service Corps (IESC) works with financial institutions to develop tools such as a plant assessment tool, collateral tool, and repayment tool.[254] These are delivered through technical assistance and training to improve access to finance for farmers. Results include access to finance for previously unbanked farmers and an increase in applications to MNOs from customers qualified for credit.[255] FINCA previously offered a variety of traditional lending products including group lending. However, usage declined in 2020 and 2021 during the COVID-19 pandemic. At the same time, MNO agents faced challenges of liquidity, especially after hours. FINCA partnered with Vodacom and FinTech, which conducts the credit scoring, to offer an instant overdraft facility that would address agent liquidity needs and would be fully digital. Through this facility, agents could also receive digitally advanced credit to restock their businesses. On traditional lending, at least 85 percent of loans granted are pre-scored using an internal credit scoring model. This has significantly improved disbursement turnaround time and repayment rates. The turnaround time is now reduced to a maximum of five working days. At least 85 percent of loans granted are scored and this has significantly improved repayment rates.[256]

MULTILAYERED EFFORTS TO EXTEND FINANCIAL SERVICES TO UNDERSERVED SEGMENTS

Alternative Distribution Channels (ADCs) extend financial services beyond physical touch points, but banking infrastructure in rural areas remains limited. Banks and financial institutions are permitted to use third party agents to extend their services.

KEY TERMS | BOX 10: Agent Banking

The agent banking model lowers the cost of reaching marginalized, formerly unbanked populations. Agents can provide financial services to consumers in areas where banks do not have sufficient incentive or capacity to establish physical branches or ATMs.

Agents can take many forms, including individuals at small shops, petrol stations, and supermarkets, among others. Financial services provided by agents can include cash-in, cash-out points; credit; loans; insurance; bill payment; and person-to-person transfers.

By the end of 2021, there were 40,410 agent banking outlets in Tanzania. Deposits through agents increased by 22.77 percent from TZS 18,875.86 billion (USD $8 million) to TZS 23,174.43 billion (nearly USD $10 million) over a one-year period, and there were 838,759 mobile money agents as of December 2021.[257]

Interviews with FINCA and CRDB indicated a strategic shift to leverage agency banking for deposit mobilization and expanding countrywide presence.[258] In one bank, 30 percent of cash-in/cash-out transactions took place outside bank opening hours, further strengthening the value proposition for agency banking.[259] Nevertheless, agents must be located within proximity to a branch to effectively manage liquidity. This presents a challenge in extending agent presence further into rural areas. Coverage therefore remains concentrated in areas within relatively close proximity of branches.

The Financial Service Registry (FSR) is an early phase initiative of the BoT to map physical financial access points and services provided to facilitate policymaking and data-driven expansion. GPS coordinates will be used to

253 "Vodacom Tanzania: Welcome." Accessed September 17, 2022. https://vodacom.co.tz/mpawa.

254 Client assessment tool used to collect information from potential borrowers to assess repayment ability, loan eligibility, and amount to be approved. The collateral assessment tool enables financial institutions to determine the overall desirability of collateral whether it is marketable, ascertainable, stable, and transferable. Repayment tools and loan amortization schedules help determine periodic loan repayment periods, typically monthly or quarterly or if a grace period is needed for level-payment loans.

255 International development partner. Interview with DECA Team, July 2022.

256 International organization. Interview with DECA Team, July 2022.

257 "Bank of Tanzania Annual Report 2020/21." n.d. Bank of Tanzania. Accessed August 14, 2022. https://www.bot.go.tz/Publications/Filter/34.

258 International development organization, Interview with DECA Team, July 2022. Online. Financial institution, CRDB, Interview with DECA Team, July 2022. Online.

259 International development organization, Interview with DECA Team, 2022. Online.

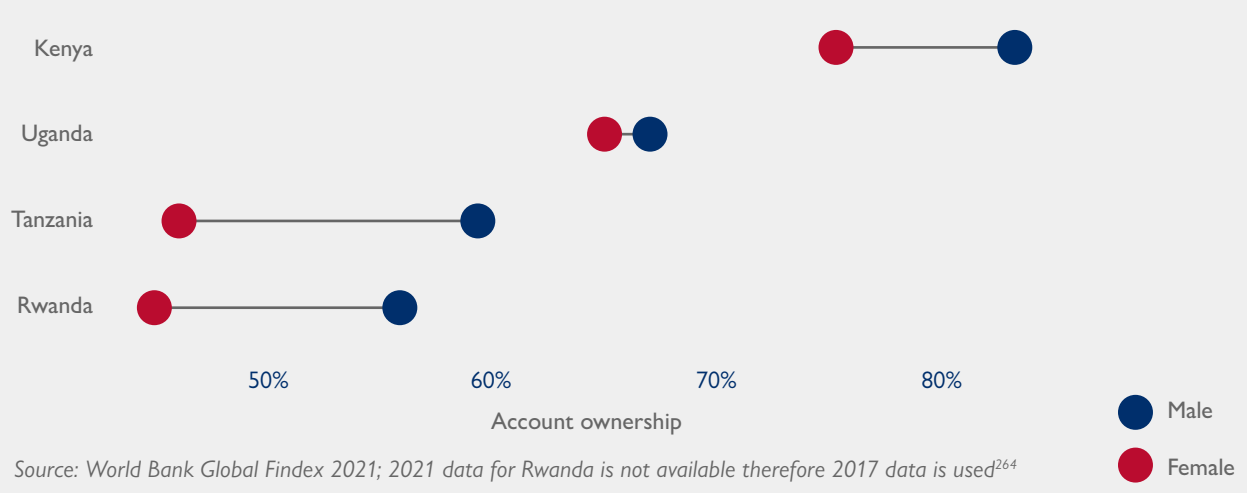
map the location of bank branches, bank and MNO agents, PoS devices and mobile money merchants, ATMs, MFIs, insurance providers, SACCOs, payment aggregators, and mortgage and finance companies. Customers will then be able to easily locate access points for their desired services. The BoT will integrate the provider register with the FSR to avoid duplication of entries. For this process to advance seamlessly, PSPs will be required to provide open Application Programming Interface (APIs). An iterative version of the FSR, an in-house solution developed by the IT department of BoT, is currently live but contains limited data.

According to FinScope, in 2017, 78 percent of adult Tanzanians in rural areas were living within a 5 km radius of a formal financial access point, the majority of which were mobile money agent outlets.[260] Despite ease of access, use of such services had not risen commensurately, mainly due to barriers such as language, affordability, low financial and digital literacy levels, and cultural factors such as social approval and resistance to change. Although notable advances have been made in extending financial services beyond physical touch points, inclusion gaps remain.[261] The majority of the financially excluded are rural dwellers for whom proximity to financial services is low. These populations are more likely to be youth, women, or farmers. Financial products targeting youth are limited. In relation to gender, according to the 2021 Global Findex, the global gender gap for formal account ownership was 13 percent (59 percent male and 36 percent female). In Tanzania, this gap is 16 percent; 32 percent of men and 16 percent of women had formal accounts at financial institutions in 2021.[262]

FSDT supported the digitalization of savings groups through the Aga Khan Foundation's Boresha Maisha project. As of 2017, more than 9,200 community-based savings groups were established, with 180,000 members in rural areas. Women comprised two-thirds of this number, saving more than 120 billion TZS (over USD $51 million). Digital savings groups increased the transparency of group accounts as well as the security of funds while reducing the time required for group meetings.[263]

HISTORICAL REPRESENTATION OF GENDER GAP IN FORMAL ACCOUNT OWNERSHIP

FIGURE 18: Gender Gap comparison, account ownership



Source: World Bank Global Findex 2021; 2021 data for Rwanda is not available therefore 2017 data is used[264]

260 "Finscope Tanzania 2017: Insights that Drive Innovation." n.d. Tanzania Deepening Trust Fund. Accessed August 14, 2022. https://www.nbs.go.tz/nbs/takwimu/references/FinScope_Tanzania_2017.pdf.

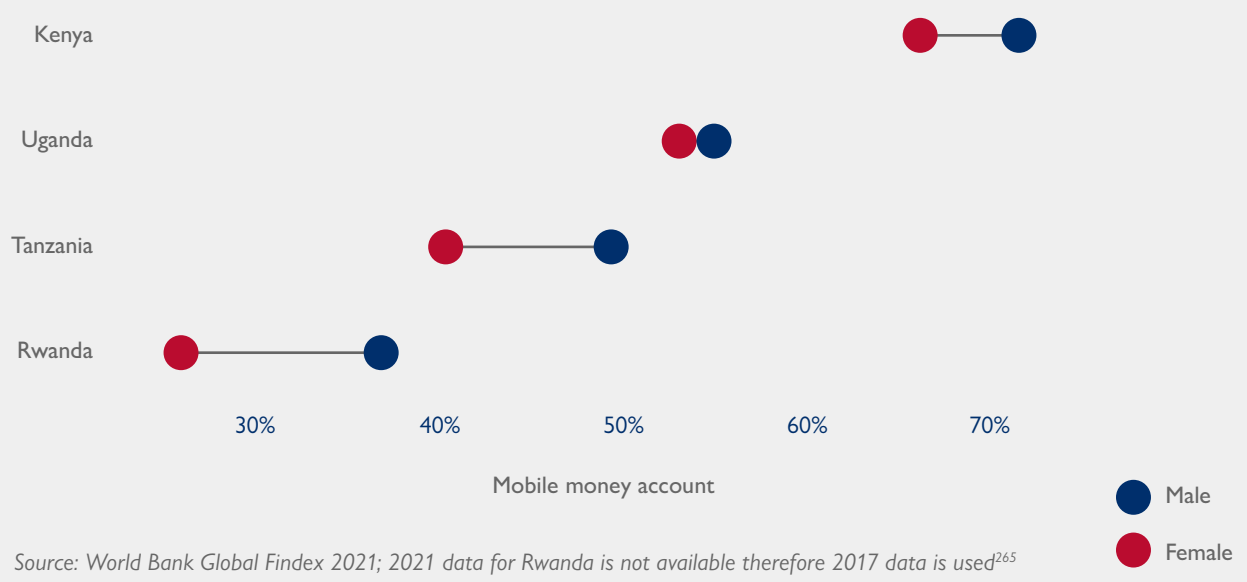
261 Financial institution. Interview with DECA Team, June 2022. Online.

262 "The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19." 2022. Worldbank.Org. June 30, 2022. https://www.worldbank.org/en/publication/globalfindex.

263 Ephraim, Innocent, and Daniel Mhina. 2017. "The Story of Digital Finance in Tanzania: FSDT Case Study." FSDT. June 2017. https://www.fsdt.or.tz/wp-content/uploads/2021/05/FSDT_DFS_CaseStudy.pdf.

264 Ephraim, Innocent, and Daniel Mhina. 2017. "The Story of Digital Finance in Tanzania: FSDT Case Study." FSDT. June 2017. https://www.fsdt.or.tz/wp-content/uploads/2021/05/FSDT_DFS_CaseStudy.pdf.

FIGURE 19: Gender Gap comparison, mobile money account ownership



Source: World Bank Global Findex 2021; 2021 data for Rwanda is not available therefore 2017 data is used[265]

Interventions to bridge inclusion gaps include:

- **Regulator-led:** The BoT leads countrywide efforts with a focus on women, youth, and small and medium enterprises (SMEs). The Women Affairs Committee for Financial Inclusion (WACFI) is a BoT initiative launched in April 2021 to bridge the digital access and use gender gap while expanding financial inclusion of women. WACFI collaborates with stakeholders in mainland Tanzania and Zanzibar to oversee and coordinate the implementation of initiatives targeting women.[266]
- **PSP-led:** Banks such as CRDB serve diverse customer segments by offering tailored financial products targeting children, teens, youth, and women. CRDB offers Malkia, a savings account designed for women, with a lower minimum opening balance (TZS 5000, USD $2). It can be operated both in TZS and USD. The account does not charge monthly or transaction charges and account holders can have access to short-term loans of up to 90 percent of their deposits.[267]
- **Development partner-led:** Gender inclusion is an important parameter for AGRA's work, with efforts made to ensure that women and youth comprise 30 percent of the participants of its interventions. Smallholder farmers are at the center of AGRA's work. Previously, programs were designed to deliberately target groups such as women, youth, and SMEs. However, with the current consortia approach, AGRA is considering how to encourage the participation of all categories of individuals in a holistic manner.[268]

INCREASING COSTS AND AN UNPREDICTABLE TAX REGIME REMAIN A CONCERN

According to the BoT, customers often hold multiple SIM cards from different providers, mainly for voice call purposes, but also to transfer funds across providers, due to their lack of awareness of interoperability. Rising competition between PSPs is resulting in more diverse DFS product offerings, but not in lower costs. MNOs have an undue advantage in issuance of USSD (Unstructured Supplementary Service Data)[269] short codes

265 Ephraim, Innocent, and Daniel Mhina. 2017. "The Story of Digital Finance in Tanzania: FSDT Case Study." FSDT. June 2017. https://www.fsdt.or.tz/wp-content/uploads/2021/05/FSDT_DFS_CaseStudy.pdf.

266 Government entity. Interview with DECA Team, June 2022.

267 "Malkia Account." n.d. Crdbbank.Co.Tz. Accessed September 11, 2022. https://demo.crdbbank.co.tz/en/product/personal/Akaunti/9.

268 International organization. Interview with DECA Team, August 2022, Online.

269 USSD code is a real time connection used for access to mobile phones without using apps, including balance inquiries and funds transfers.

required for most mobile-based products. As licensed institutions, both banks and MNOs have a regulatory advantage over FinTechs. Most FinTech interviewees were of the view that PSPs, especially those with large customer bases, capitalize on these positions and negotiate higher margins on connectivity fees. These costs are ultimately passed down to customers and may diminish prospects for FinTechs offering affordable services, especially to segments registering low uptake such as smallholder farmers and micro, small, and medium enterprises (MSMEs). TCRA levied high fees for the acquisition of USSD codes from MNOs, although these were waived for a six-month period for startups entering the market.[270] Current tax measures also contribute to high costs. Although the impact is expected to be short-term, perceived high costs can lead to customer attrition, defeating the country's goal of transitioning to a cash-lite economy.[271]

Non-Financial Digital Technology Use Cases in Agriculture

Agriculture is Tanzania's main economic driver, with a GDP contribution of close to 30 percent. More than two-thirds of the population depend on small-scale agriculture for employment and livelihoods. Despite reliance on this sector, adoption of agricultural technologies is slow, leading to low productivity. Digital technology has the potential to improve productivity, on-farm and off-farm efficiency, enhancing traceability, reducing vulnerability to counterfeit products, and improving farmers' access to output, input, and financial markets.[272] A few examples of digital technology applications aimed at addressing some of the resulting gaps and increasing productivity include:[273]

- **FishWise:** Digital technologies have the potential to improve efficiencies in the seafood supply chain. However, supply chain coordination is a multi-stakeholder process and no one entity can achieve end-to-end traceability. Although a few initiatives exist to address this challenge, none are comprehensive. The Government of Tanzania partnered with USAID/Tanzania and FishWise, a non-profit sustainable seafood consultancy based in the United States, to increase the sustainability of the fish supply chain by applying digital technologies to increase supply chain traceability. Traceability principles are established using a tool that was partly designed by FishWise, and that is being tested in Zanzibar. This initiative produces data that can be shared with other stakeholders. [274]
- **Alliance for a Green Revolution (AGRA):** Using a mobile application, AGRA piloted an e-verification solution known as T-Hakiki that tracks certified agricultural inputs to reduce the use of counterfeit agricultural inputs. T-Hakiki engages private sector input providers, farmers, and Tanzania Official Seed Certification (TOSCI) in its offerings. At agro-dealer shops, farmers can verify the authenticity of seeds or pesticides that have a T-Hakiki verification sticker on their mobile phones. TOSCI, a government institute, adopted T-HAKIKI and is using it in its work with seed companies. More than 350,000 farmers in Tanzania use T-Hakiki to verify their input purchases. As of 2020, more than 4,700,000 seed packages had been encrypted with identification numbers. TOSCI and the Tanzania Tropical Pesticides Research Institute (TPRI) use the digital labels for seed and pesticide verification. Forty seed companies and 101 pesticide companies have been trained and registered to use the system. This investment is worth more than Tzs 3 billion (about USD $1.3 million) and will help more than 10 million farmers avoid fake inputs and increase their use of certified inputs. T-Hakiki is also available on major telecommunication company platforms.[275]

270 Private sector startup. Interview with DECA Team, June 2022.

271 Government entity. Interview with DECA Team,.June 2022.

272 Ordu, Aloysius Uche, Larry Cooley, and Lesly Goh, "Digital Technology and African Smallholder Agriculture: Implications for Public Policy," Brookings Institution. March 9, 2022. https://www.brookings.edu/blog/africa-in-focus/2021/08/16/digital-technology-and-african-smallholder-agriculture-implications-for-public-policy/.

273 Private sector startup. Interview with DECA Team, July 2022.

274 International development parnter. Interview with DECA Team, July 2022.

275 "How Integration Enhances the Competitiveness of Agribusinesses and Smallholder Farming Systems." Alliance for a Green Revolution-Africa (AGRA). 2021. https://agra.org/wp-content/uploads/2022/02/How-Integration-Enhances-the-Competitiveness-of-Agribusinesses-Tanzania-case-study.pdf.

AGRA worked with local partners to improve the financial resilience of smallholder farmers to shocks by developing a crop insurance product and a loan insurance product. They digitalized the management and supply of agricultural inputs for hub agro-dealers in Tanzania to better track outflows of agricultural inputs. The hope is to ultimately reach smallholder farmers in rural areas. AGRA also piloted an Uber for Tractors model, designed to support access to financial, mechanization, and market solutions. The initiative included linking lead farmers to agriculture loans from banks, demonstrating the mechanization of equipment use, and providing farm management and extension services so farmers use mechanization with good agronomic practices for increased productivity and incomes.[276]

- **Agritech:** This startup provides irrigation systems, water harvesting systems like dams, farm planning, and layout design for commercial farmers. AgriTech is one of the pioneer enterprises to implement smart hydroponics in Tanzania. Hydroponics is the practice of soilless crop farming using a mix of water and nutrients. Internet of things (IoT) sensors are used to decode useful information that is then channeled to a cloud platform and on to a user interface to enable monitoring. The advantages of smart hydroponic farming include: virtual monitoring of water and nutrient levels; use in urban farms where land is scarce and spaces are more restricted; reduced water use (up to 90 percent less use); lower propensity for crop disease and therefore higher yields; and because all year farming is possible, supply chains can be tended to more frequently and at lower costs.[277]
- **Tanzania Horticultural Association (TAHA):** TAHA is developing a digital extension system to reach farmers in remote areas and in places where TAHA does not have a physical presence. They conduct market research activities to directly link smallholder farmers to the domestic market through a database that collects prices of 15 crops from 22 different markets and from enumerators who post trade prices three times a week. At the end of the year, TAHA compiles and publishes market trends. A USSD short code was developed through which farmers have access to pricing information and can identify logistics providers. TAHA previously raised awareness and notified farmers of promotions using printed books and pamphlets. It now disburses information through digital resources that are available online through a barcode. Farmers are eager to use the barcodes and the discounts attached to them.[278]

Post-Harvest Losses

TAHA identified post-harvest losses as a persistent challenge in the horticultural sector. Despite numerous efforts to enhance food security in Africa, hunger and malnutrition remain an enormous barrier to Africa's socio-economic development. Various factors contribute to this food insecurity, including persistent droughts, natural disasters, wars and conflicts, as well as post-harvest losses.[279] Post-harvest loss reduces the income of smallholder farmers by 15 percent and results in reduced food supply in developing regions.[280] The East African Community experiences massive post-harvest losses in food products annually in the range of 30 percent in cereals, 50 percent in roots and tubers, and up to 70 percent in fruits and vegetables.[281] Despite concerted efforts to improve storage facilities, African smallholder farmers are still reliant on traditional grain, fodder, and seed storage facilities such as mud

276 International organization. Interview with DECA Team, August 2022. Online.

277 Private sector startup. Interview with DECA Team, July 2022.

278 International development partner. Interview with DECA Team, August 2022.

279 Ambuko. Jane, Senior Lecturer and Head of Horticulture at Department of Plant Science and Crop Protection. "Why Reducing Post-Harvest Losses Is a Priority for Africa." The Conversation, November 20, 2017. https://theconversation.com/why-reducing-post-harvest-losses-is-a-priority-for-africa-87312.

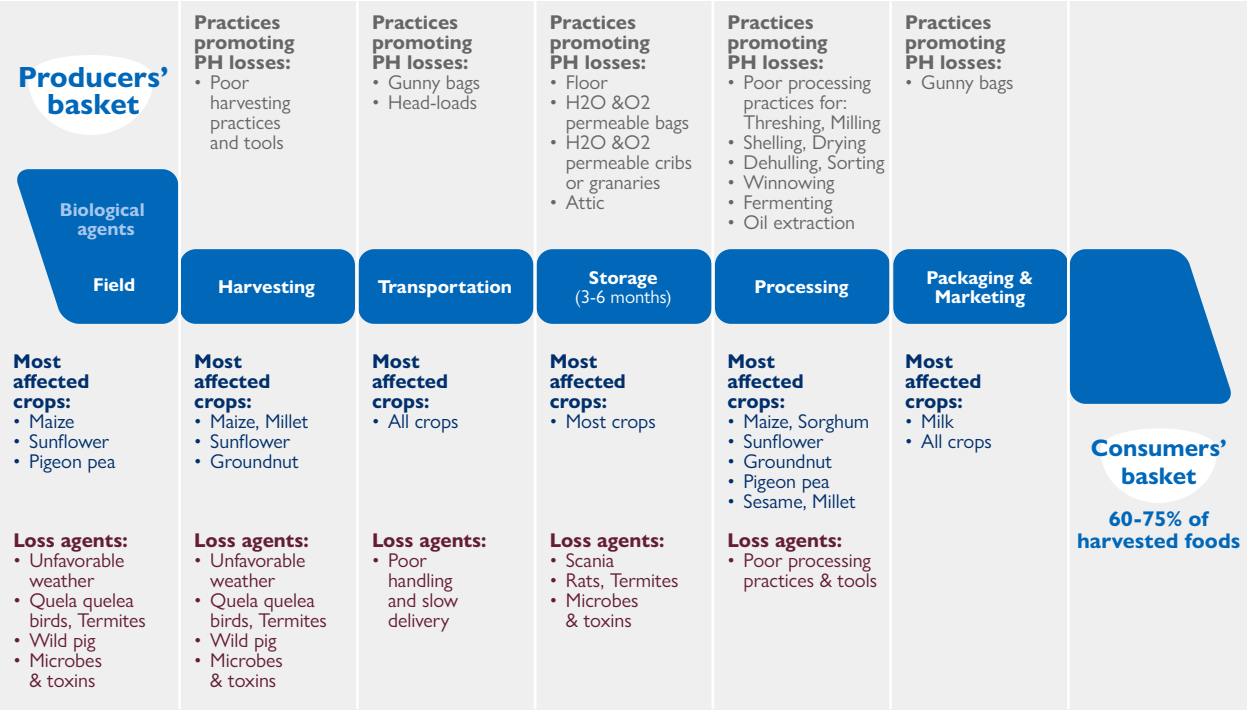
280 "Reducing Post-Harvest Loss." n.d. Accessed September 24, 2022. https://www.rockefellerfoundation.org/wp-content/uploads/2021/04/2019-FOD-014-DEL-2020.05.31-GENESIS_YieldWise-Toolkit-2020_Final_All-links-working.pdf.

281 EAC records huge post-harvest losses in cereals and root crops. Eac.int. 2022. Accessed September 28, 2022. Online. <https://www.eac.int/press-releases/141-agriculture-food-security/2393-eac-records-huge-post-harvest-losses-in-cereals-and-root-crops>

silos, barns, cribs, and drums. Although these are simple to construct and inexpensive to maintain, over time they expose stored items to biological, physical, and environmental hazards.

Tanzania faces about 30 to 40 percent post-harvest loss annually, mainly in horticultural products and at the storage phase.[282] The Food and Agriculture Organization (FAO) indicates that Tanzanian farmers lose up to 40 percent of annual harvests through post-harvest losses.[283] Actual numbers are often inaccurately determined and poorly documented.[284] Causes of post-harvest losses in Tanzania are outlined in Figure 20.

FIGURE 20: Causes of post-harvest losses in Tanzania



Source: The National Post- Harvest Management Strategy 2019[285]

Tanzania is on track to half cut post-harvest losses by 2025 through strategies and policies as well as developments in storage infrastructure across the country. By 2021, Tanzania had successfully reduced losses by 28 percent.[286] Tanzania enacted the National Post-Harvest Management Strategy (NPHMS) 2019-2029 that aims at facilitating and building the capacity of post-harvest actors in order to reduce losses and increase farmer income as well as food and nutrition values. The strategy does not include an explicit goal of exploring digital technology-enabled solutions to this challenge. However, according to the strategy, post-harvest management in the country will largely depend on financial support from the government, the private sector, and the international community, as well as on individual contributions. An integrated approach and coordinated working system that could explore how to leverage digital technologies is required to ensure that funds to address post-harvest loss issues are used to achieve the objectives presented in the strategy.[287]

282 International developmentpartner.. Interview with DECA Team, July 2022. Online.

283 Christopher, J., 2022. Tanzania on Right Track Cutting Post-Harvest Crop Losses. CCARDESA. Accessed September 28, 2022. Online. <https://www.ccardesa.org/tanzania-right-track-cutting-post-harvest-crop-losses>

284 About APHLIS. Aphlis.net. 2022. About APHLIS. Accessed September 28, 2022. <https://www.aphlis.net/en/page/7/about-aphlis>.

285 "The National Post Harvest Management Strategy 2019-2029." Wizara ya Kilimo, 2019. https://www.kilimo.go.tz/uploads/dasip/ENGLISH_STRATEGY.pdf pg 13

286 Christopher, J., 2022. Tanzania on Right Track Cutting Post-Harvest Crop Losses. CCARDESA. Accessed September 28, 2022. Online. <https://www.ccardesa.org/tanzania-right-track-cutting-post-harvest-crop-losses>

287 Amoah, S., 2022. Tanzania on Right Track Cutting Post-Harvest Crop Losses - FARA Africa. Accessed September 27, 2022. Online. <https://faraafrica.org/2022/04/12/tanzania-on-right-track-cutting-post-harvest-crop-losses/>

3.2 TECHNOLOGY STARTUP ECOSYSTEM IS THRIVING DESPITE MULTIPLE CHALLENGES

Although in its infancy, the tech startup ecosystem is growing with a variety of startups from sectors such as agriculture, ICT, finance, e-commerce, logistics, and health. These are supported by a strong network of ecosystem enablers including accelerators, incubators, and other entrepreneurship support organizations that emerged over the last five years. Startups including Celcom, Kopa Guess, Magelan, Max Malipo, Nala, Sahara Ventures, and Tunzaa commercialized and made inroads locally and in international markets. However, the innovations being developed by tech entrepreneurs in Tanzania are mostly not scalable and, as a result, attract low funding. Applications of disruptive technologies are few and have low impact. Startups across the product cycle are highly dependent on development partners and government support, which has the potential to distort markets and hinder organic growth.[288] The lack of coordination and duplication of services offered to startups is rife. The duplication of support offered by hubs, incubators, and accelerators is high due to the lack of specialization in services offered and an absence of coordination mechanisms across the business enablers. Tech startups spend large periods of time moving from one enabler (incubator/accelerator) to another. Tech startups that were successful at one enabler have still been invited to participate in entrepreneurship support activities, even when such services are not needed.[289]

Based on interviews, the following GoT-led initiatives to support the startup ecosystem were identified:

1. The planned **National ICT Sandbox** will facilitate testing of new financial service innovations within controlled regulatory environments prior to licensing. The National Research, Innovation, and Monitoring framework outlines a coherent set of indicators for monitoring the outcomes, outputs, and impact of investment in research and innovation in the country.
2. **Silicon Dar** is a collaborative effort between the public and private sector to promote the new technology district in Dar es Salaam. It houses several innovation hubs, telecom companies, academia, data centers, tech startup companies, business incubators, and Commission for Science and Technology (COSTECH).[290]
3. **Innovate,** an innovation ecosystem map, is an open-source tool created to collect data on the innovation ecosystem, to translate it, and to make it accessible to ecosystem stakeholders in order to design support for innovations in Tanzania. It was created through a partnership between the Human Development Innovation fund (HDIF) and COSTECH.
4. The **Startup Act** is expected to address processes in startup registration, levies, and taxes and to advocate for tax exemption. A Comparative Baseline Study on the Establishment of a Startup Policy in Tanzania was conducted by TSA and the Ministry of Industries and Trade in August 2021 with findings published in January 2022.[291]

The Tanzania Startup Association (TSA), an apex body that began operations in early 2020 to advocate for policy and regulation around tech startups, has more than 400 members from various sectors and from across the country. An interviewee from TSA reported that USD $190 million in funding was raised by tech startups in Tanzania over the last two years.[292] Innovation Week Tanzania, an annual event held since 2015, is a platform that hosts a weeklong series of collaborative events in Tanzania, aimed at providing space to innovators, policymakers, corporations, development partners, researchers, and other players in the innovation ecosystem to share, learn from one another, and engage in strategic and policy discussions aimed at strengthening the innovation and tech

288 International organization. Interview with DECA Team, June 2022.

289 Private sector startup.. Interview with DECA Team, June 2022.

290 Private sector startup. Interview with DECA Team, June 2022.

291 Business association. Interview with DECA Team, June 2022.

292 Business association. Interview with DECA Team, June 2022.

ecosystem through collaboration. In 2022, the event took place in 16 regions of Tanzania including Zanzibar, and was jointly hosted by the United Nations Development Program (UNDP) through its Funguo Programme and COSTECH under the coordination of the Ministry of Education, Science and Technology (MoEST).[293]

STARTUP ECOSYSTEM GROWTH HAMPERED BY POLICY AND REGULATORY VACUUMS

Regulations governing operations of tech startups, especially FinTechs, are unclear and are often not tailored to the unique nature of these enterprises. FinTechs are advised to operate under banks, but such partnerships often lead to challenges for FinTechs due to their low negotiating power and to differences in growth strategies between FinTechs and banks. The government levies a capital gains tax of 20 percent, which respondents noted are considerably higher than in other countries in East Africa such as Rwanda, which levies a capital gains tax of 7 percent. A lack of clarity on formation and exits of venture funds has discouraged foreign investors from setting up in Tanzania.[294]

The introduction of a Digital Service Tax at the rate of 2 percent on the turnover of non-resident online service providers may be targeted at technology giants and other foreign tech startups seeking market entry into Tanzania. This limitation on their entry may deny opportunities to local companies for benchmarking and ecosystem development.

AVAILABLE FUNDING INSUFFICIENT TO MEET DEMAND

Some donors and private sector entities have issued calls for proposals for grant funding targeting early-stage and growth-stage technology startups. Demand outstrips supply, resulting in high requirements that most startups find unattainable. After making a call for proposals, one private sector entity received 500 applications and could only select 15 startups, with a high likelihood that the selected startups had already received funding from other investors.[295] Investments from government, private sector, and local investors are also limited. Causal factors influencing limitations for startup funding on both demand and supply sides are outlined in Table 8.

TABLE 8: Supply and demand side limitations to startup funding

DEMAND SIDE	SUPPLY SIDE
Shortage of investor-ready businesses with strong growth potential	Low confidence by institutional investors Not a priority for local investors
Low levels of technology skills beyond founders and cofounders	Lack of local angel networks
Entry barriers, mostly regulatory, affecting business registration and ownership for FinTechs. Shortages of skilled talent capital which adversely affects qualifications for receiving funding	Geographical restrictions with comparatively less investment funding targeted for Africa.
Low awareness on modalities for some funds, such as empowerment funds targeting youth	Limited Key Performance Indicator (KPI) focused funding calls for proposal

Recent calls for funding proposals include:

- FUNGUO program is UNDP's innovation program in Tanzania, co-funded by the European Union, the UK's Foreign, Commonwealth & Development Office (FCDO), and UNDP and implemented in partnership with UNCDF. It aims to increase the number of successfully scaled innovative ventures or startups by addressing three key barriers: innovation financing, innovation service delivery, and an innovation enabling

293 International development partner, Interview with DECA Team, June 2022.

294 Private sector startup. Interview with DECA Team, June 2022.

295 MNO. Interview with DECA Team, July 2022.

environment. Funguo recently completed its first round of funding through which 26 impact-driven startups were provided with a responsible equity-free grant ranging between USD $20,000 to USD $85,000 that will be complemented with technical assistance. This first call targeted legally registered impact-driven startups and scalable innovative SMEs that are located in Tanzania and are majority-owned by Tanzanians. Special consideration was given to women-owned and women-led ventures.[296]

- **Vodacom Digital Accelerator:** An initiative of Vodacom Tanzania that supports early-stage and growth-stage technology startups offering disruptive products and services with strong market entry, revenue generation, and scalability potential. This is achieved through technical support and mentorship from industry-leading experts from Vodacom and the ecosystem.[297]
- **Mpreneur:** An initiative of Cube Zanzibar with a presence across Africa, Asia, and Europe that targets support to youth with innovative mobile app solutions that address community challenges. The non-cash grant offers entrepreneurship skill development, mentorship, and networking opportunities.[298]

TECH STARTUP SCALABILITY HELD BACK BY LACK OF MENTORSHIP AND UNCOORDINATED ENABLERS

There is a lack of mentorship programs to transfer the practical skills required for startups to thrive. Incubators, accelerators, innovation hubs, entrepreneurship centers, and similar ecosystem enablers that promote entrepreneurship have become increasingly prominent in Tanzania.[299] While Tanzania's technology startup ecosystem is vibrant, there is a lack of coordination and specialization among these many ecosystem enablers. Incubators and accelerators often play the same role, although their focus differs depending on the target startup stage of client businesses.[300] As a result, activities are replicated with limited value to startups. The tech startup enabler space is crowded and scalability of startup-led solutions is low. As a guide, the ILO developed a typology defining target groups and business models and services offered by ecosystem enablers as follows:

TABLE 9: Categorization of Entrepreneurship support organizations

CATEGORY	TYPE 1	TYPE 2	TYPE 3
AIM	Foster an entrepreneurship ecosystem and a general business environment that supports start-ups.	Assist start-ups with longer-term business development (e.g. a minimum viable product, a prototype, and/or a sustainable business model).	Facilitate rapid growth for start-ups that would otherwise take a year or two.
TARGET	Idea and exploration stage; very early stage entrepreneurs	Early stage start-ups (idea stage) where founders are showing high motivation and promise.	Growth stage start-ups
BUSINESS MODEL	Public and hybrid with support from private sector and development organization	Privately owned and incubators take a share of the startup's equity in exchange for services offered	Privately owned, select high potential startups, and take a share of the company's equity in exchange for acceleration services or upon acquisition
SERVICES	Co-working space, technical skills such as product development	Seed funding, MINI MBA programmed, access to networks and investors,	Access to mentors and investors business management services such as legal services, sales, and marketing

Source: ILO, 2022

296 International development partner. Interview with DECA Team, June 2022.

297 MNO. Interview with DECA Tea July 2022.

298 Private sector startup. Interview with DECA Team, July 2022. Online.

299 Chaux, M., 2022. Ilo.org. Accessed 30 September 2022. <https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_seed/documents/publication/wcms_820562.pdf>

300 Friederici, Nicolas. "Hubs vs. Incubators: What Are the Pain Points for Impact and Efficiency?" Geonet. Accessed September 30, 2022. https://geonet.oii.ox.ac.uk/blog/hubs-vs-incubators-what-are-the-pain-points-for-impact-and-efficiency/.

In addition to policy advocacy and capacity-building, mentor-mentee needs are not coordinated and available mentors may not reach wide audiences. Organizations such as Empower and Vodacom Digital Accelerator are working to address these gaps. Both organizations place open calls for local mentors, and Vodacom provides mentors from its own staff.[301] However, collaboration with PSPs is minimal and not considered mutually beneficial due to regulatory and market advantage. Banks and MFIs reportedly do not participate in Tanzania Innovation Week as the concept of banks supporting tech startups is new.[302] FinTechs decry the high costs of transaction fees and overall lack of integration with banks and MNOs. [303]

FABLAB CONCEPT IS PROMISING BUT UNDEREXPLORED

Fabrication Laboratories (FabLabs) are publicly accessible workshops that offer digital manufacturing technology and electronics tools for design and development of new hardware products and prototypes.[304] Typical FabLab equipment includes 3D Printers, 3D scanners, vinyl cutters, laser engravers, and CNC mills/routers. Buni Innovation Hub hosted a mini FabLab, but it is no longer operational due to a shift in focus to working with enablers.[305] The FabLab hardware development model is not prevalent in Tanzania, but it holds high potential to equip entrepreneurs in both the formal and informal economy with digital fabrication skills as has occurred in countries such as Kenya and Rwanda.

3.3 E-COMMERCE IN EARLY STAGES WITH INCREASED TRUST CONSIDERED ESSENTIAL

E-commerce in Tanzania is in its early stages of development in both supply and demand and has good growth potential. The National Information and Communications Strategy (NICS) policy statement on e-commerce outlines the following e-commerce related objectives:

- Establish an environment conducive to e-commerce transactions and competition;
- Encourage more use of ICT in financial services such as banking and insurance; and
- Promote the use of ICT to enhance efficiency, effectiveness, and continuity in the provision of services and basic utilities, especially in billing and payment systems.[306]

The widespread adoption of mobile technology presents opportunities for app-based e-commerce as well as social commerce through online marketplaces such as Facebook, Instagram, and WhatsApp.

301 MNO. Interview with DECA Team, July 2022.

302 Private sector startup. Interview with DECA Team, June 2022.

303 Private sector startup. Interview with DECA Team, June 2022.

304 Troxler, Peter. 2016. "Fabrication Laboratories (Fab Labs)," In The Decentralized and Networked Future of Value Creation, 109-127. Springer. https://www.researchgate.net/publication/303182688_Fabrication_Laboratories_Fab_Labs.

305 Private sector startup Interview with DECA Team, June 2022.

306 W. H. Makame, J. Kang, and S. Park, "Factors Influencing Electronic Commerce Adoption in Developing Countries: The Case of Tanzania," South African Journal of Business Management (Cape Town: African Online Scientific Information Systems (AOSIS), January 1, 1970), https://www.researchgate.net/publication/286490889_Factors_influencing_electronic_commerce_adoption_in_developing_countries_The_case_of_Tanzania.

TABLE 10: E-commerce vs. Social Commerce

	E-COMMERCE	SOCIAL COMMERCE
DESCRIPTION	Buying and selling of goods and services on the internet such as duka.direct, Pickit, Postashopz, Piki	A subset of e-commerce buying and selling of goods and services conducted on social media channels, especially Facebook, Instagram, and WhatsApp.
MERCHANT PROFILE	Mostly local or regional	Informal small businesses and medium sized enterprises.
GEOGRAPHIC EXTENT OF CUSTOMER NETWORK	National	National
PAYMENT FORMS	Mobile Money and cards	On delivery: Cash, Mobile Money
LEVEL OF AUTOMATION	Online/Offline fulfillment	Offline fulfillment

Local e-commerce marketplaces such as Desertcart, duka.direct, Inalipa, Pickit, and Zudua are steadily evolving and gaining traction as user trust in online purchases increases. Tanzania Posts Corporation (TPC) offers an integrated e-commerce multi-vendor market platform called Postashoptz.[307] Social media-based online businesses are especially prevalent among youth who lack opportunities to enter formal job markets. Local and external e-commerce providers have entered the market using various models. For example, Tunzaa, a local e-commerce provider, adopted the save now, buy later model outlined in Box 11.

BOX 11: Spotlight on Tunzaa: Save now, buy later

Tunzaa was developed on the premise that customer financial behavior is non-linear and sometimes irrational and that with fragmented expenses, building an accurate credit score is challenging. With financial hardship compelling users to seek pay later pricing models, Tunzaa's value proposition is to save now, buy later and build a credit score in the process. Buyers first register on Tunzaa's e-commerce portal, then select items. This displays the prepayment plan and they can begin to make payments toward owning selected items. Once payment is completed, buyers can collect the items from Tunzaa's offices or have them delivered to them at an additional fee. It is a community-driven initiative with the user community engaged in iterations and future product development. Tunzaa's clientele are from both formal and informal sectors and live in major cities, with 90 percent selecting Swahili as their language of choice. Most have feature phones necessitating travel to physical shops for placing orders and collections. The average transaction is TZS 27,000. Tunzaa signs agreements with businesses to obtain buyers and manage the save now, buy later model while earning a commission of 25 percent. At present, demand exceeds supply and use cases are increasing. Competition with other big companies is making funding a challenge, especially for quick growth. Within one year, Tunzaa had gross revenues of USD $100,000, a customer base of 12,000, and a growing number of suppliers, including MNOs and prospective retail banks.

Source: Tunzaa 2022[308]

307 "United Republic of Tanzania: Rapid eTrade Readiness Assessment." 2020. UNCTAD.org. May 2020. https://unctad.org/system/files/official-document/dtlstict2020d2_en.pdf.

308 Private sector startup. Interview with DECA Team, June 2022.

GAPS IN THE POLICY AND REGULATORY LANDSCAPE FOR E-COMMERCE COULD DELAY GROWTH

The Electronic Transactions Act (2015) and digital signature acceptance are in place and online trades do not require separate licenses to conduct e-commerce. However, regulations specifically targeting e-commerce— including a national e-commerce policy and strategy—do not exist. Regulations such as data privacy and consumer protection, including dispute resolution mechanisms, heavily influence e-commerce operations and are yet to be fully implemented.

Other factors inhibiting the growth of e-commerce include the lack of smart devices, which necessitates the use of offline and physical outlets, increasing the costs of e-commerce. The lack of physical addressing compounds this difficulty. To address this challenge, Tunzaa is creating a physical warehouse where buyers without smartphones or accessible physical locations can place and collect orders.

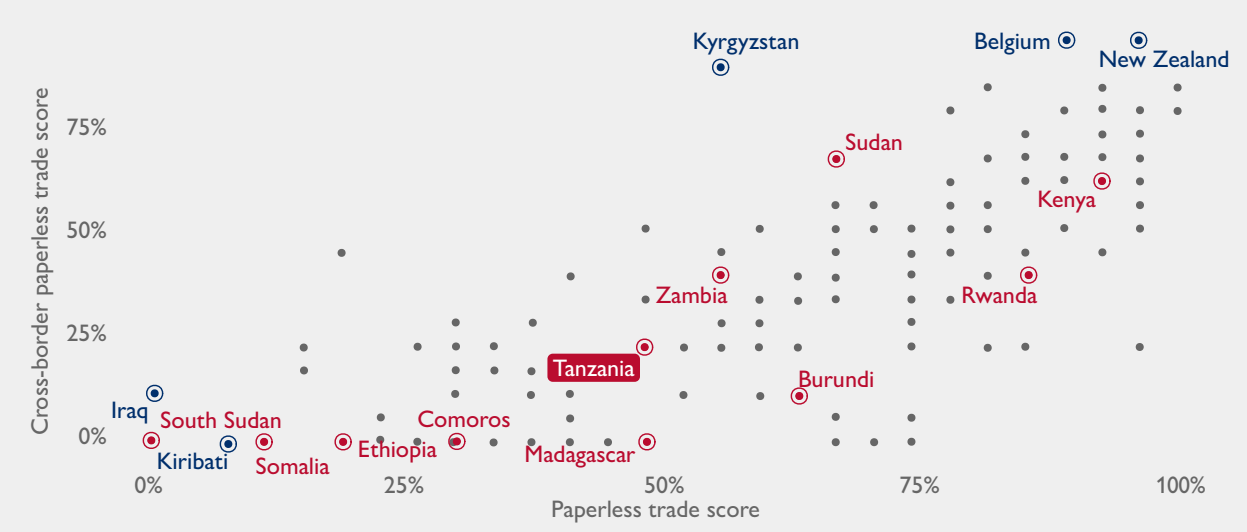
Low seller-customer trust is demonstrated by a preference for offline payments and pay-on-delivery with cash or mobile money. Customers are uncertain that they will receive items and of the quality advertised while sellers grapple with trusting buyers to pay for items received. Opportunities to address such challenges through technology such as the use of escrow accounts are lacking. Providers such as Tunzaa recognize this low trust and are in the process of setting up physical touch points.

Courier logistics are not well designed to accommodate e-commerce, especially for physical goods. At times, costs are comparatively high, which pushes buyers to prefer traditional purchases.[309] The national postal services provided by the TPC are not leveraged for e-commerce.[310]

UNREALIZED OPPORTUNITIES IN ACCELERATING DIGITAL TRADE LOCALLY AND IN THE GLOBAL ARENA

Tanzania ranks relatively low on paperless trade (48.15 percent) and more so for cross border paperless trade (22.22 percent) according to the 2019 UN Global survey on digital and sustainable trade facilitation. In comparison to its neighboring countries, Tanzania falls behind Kenya, Rwanda, and Zambia among a few others.

FIGURE 21: Tanzania paperless trade facilitation score (2019)



Source: UN Global Survey on Digital and Sustainable Global trade Facilitation; Note. Uganda is not included in the data[311]

309 Private sector startup. Interview with DECA Team, June 2022.

310 Private sector startup. Interview with DECA Team, June 2022.

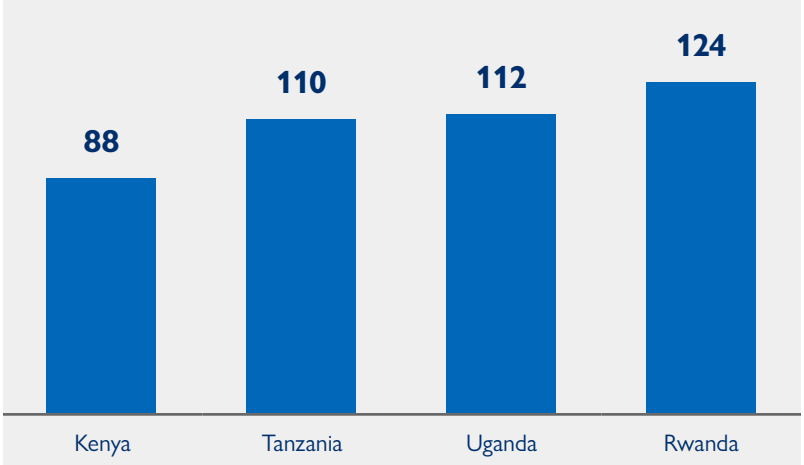
311 "Trade Facilitation and Paperless Trade in Tanzania," Trade Facilitation and Paperless Trade in Tanzania | UN Global Survey on Digital and Sustainable Trade Facilitation, 2021, https://www.untfsurvey.org/economy?id=TZA&year=2021.

Digital technologies can expand opportunities for participation in domestic and international trade. In Tanzania, online trade of goods and services is practiced at a small scale and mostly informally, such as through social media marketplaces and online gig work portals. The number of established and commercial digital businesses remains low. [312]: In Article 104 of the EAC protocol on free movement of persons and labor, partner states consented to endorse measures that would make possible the free movement of persons, labor, and services. Provisions are also made in the article to remove restrictions on movement of labor and services.[313] Online work as a main source of income, including services such as app-based taxi hailing companies, online food vendors, and delivery providers, is slowly gaining ground among workers with varying levels of educational attainment. Digital knowledge and device ownership are key drivers of this development. Initiatives to advance online work include Ellipse Ltd, which trains local software developers and outsources to European markets. Cube Zanzibar provides social media marketing training and workshops to graduates of higher learning institutions as well as to nonstudents in Zanzibar.[314]

In November 2019, Tanzania ratified the WTO Trade Agreement, which spells out the commitments of individual countries to lower customs tariffs and trade barriers, opening services markets, and dispute resolution mechanisms.[315] In February 2021, Tanzania ratified the African Continental Free Trade Area (AfCFTA) agreement, which aims to boost intra-African trade among the 43 plus member states. Tanzania's commitments under the agreement include protocols on trade in goods, services, and Rules and Procedures on the Settlement of Disputes. In February 2021, the African Union Heads of State and Government Assembly included e-commerce in the African Continental Free Trade Area (AfCFTA).[316]

According to the United Nations Conference on Trade and Development (UNCTAD) e-trade readiness assessment, out of 152 countries, Tanzania and other selected EAC member countries are ranked in figure 22.[317]

FIGURE 22: UNCTAD e-trade readiness ranking



Source: UNCTAD e-trade readiness assessment

312 Private sector financial institution, Interview with DECA Team, June 2022. Online.

313 "Immigration and Labor." n.d. Eac.Int. Accessed September 11, 2022. https://www.eac.int/immigration.

314 Private sector startup. Interview with DECA Team, June 2022.

315 Tanzania: MPs Ratify Entry Into WTO. Accessed September 11, 2022.https://allafrica.com/stories/201911150222.html.

316 Ogo, Ify. 2020. "An Agenda for the AfCFTA Protocol on E-Commerce." Tralac.Org. June 25, 2020. https://www.tralac.org/blog/article/14692-an-agenda-for-the-afcfta-protocol-on-e-commerce.html.

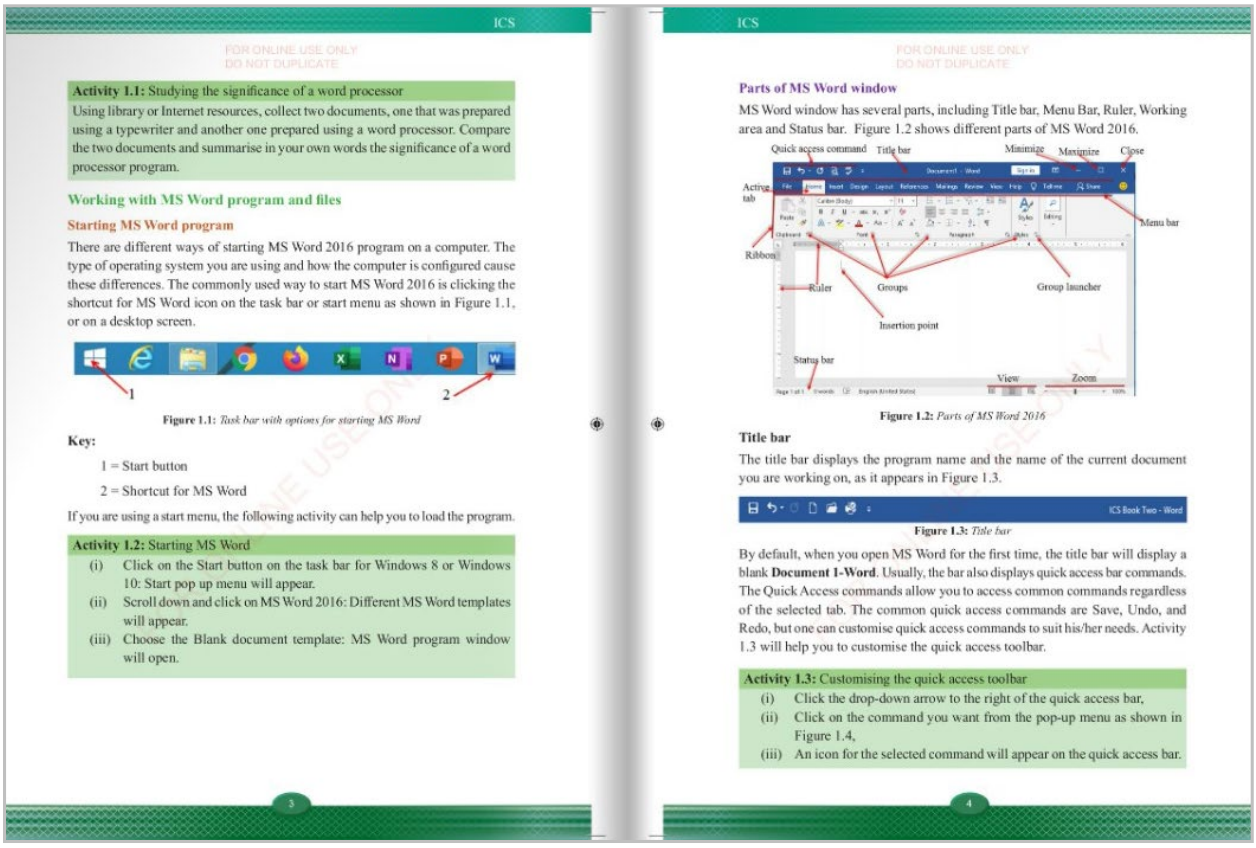
317 "United Republic of Tanzania: Rapid eTrade Readiness Assessment." 2020. Unctad.Org. May 2020. https://unctad.org/system/files/official-document/dtlstict2020d2_en.pdf.

3.4 ONGOING INTERVENTIONS TO BOOST THE DIGITAL TALENT POOL ARE YET TO SHOW RESULTS

EMBEDDING DIGITAL TECHNOLOGY IN SCHOOL CURRICULA YIELDS MIXED OUTCOMES

Interviewees indicated that demand for intermediate, advanced, and specialized digital skills exceeds supply.[318] The Ministry of Education, Science and Technology has been working to incorporate digital skills in curricula at all levels of education for students and teachers. The Tanzania Institute of Education (TIE) online forum contains textbooks for various subjects for students from elementary levels, Standard 1-7, and secondary and advanced levels encompassing Forms 1-6. [319]

FIGURE 23: Sample online textbook on TIE website



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Activity 1.1: Studying the significance of a word processor

Using library or Internet resources, collect two documents, one that was prepared using a typewriter and another one prepared using a word processor. Compare the two documents and summarise in your own words the significance of a word processor program.

Working with MS Word program and files

Starting MS Word program

There are different ways of starting MS Word 2016 program on a computer. The type of operating system you are using and how the computer is configured cause these differences. The commonly used way to start MS Word 2016 is clicking the shortcut for MS Word icon on the task bar or start menu as shown in Figure 1.1, or on a desktop screen.

1 2

Figure 1.1: *Task bar with options for starting MS Word*

Key:

1 = Start button

2 = Shortcut for MS Word

If you are using a start menu, the following activity can help you to load the program.

Activity 1.2: Starting MS Word

(i) Click on the Start button on the task bar for Windows 8 or Windows 10: Start pop up menu will appear.
(ii) Scroll down and click on MS Word 2016: Different MS Word templates will appear.
(iii) Choose the Blank document template: MS Word program window will open.

3

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Parts of MS Word window

MS Word window has several parts, including Title bar, Menu Bar, Ruler, Working area and Status bar. Figure 1.2 shows different parts of MS Word 2016.

Quick access command
Title bar
Minimize
Maximize
Close
Active tab
Menu bar
Ribbon
Ruler
Groups
Group launcher
Insertion point
Status bar
View
Zoom

Figure 1.2: *Parts of MS Word 2016*

Title bar

The title bar displays the program name and the name of the current document you are working on, as it appears in Figure 1.3.

ICS Book Two - Word

Figure 1.3: *Title bar*

By default, when you open MS Word for the first time, the title bar will display a blank **Document 1-Word**. Usually, the bar also displays quick access bar commands. The Quick Access commands allow you to access common commands regardless of the selected tab. The common quick access commands are Save, Undo, and Redo, but one can customise quick access commands to suit his/her needs. Activity 1.3 will help you to customise the quick access toolbar.

Activity 1.3: Customising the quick access toolbar

(i) Click the drop-down arrow to the right of the quick access bar,
(ii) Click on the command you want from the pop-up menu as shown in Figure 1.4,
(iii) An icon for the selected command will appear on the quick access bar.

4

Source: TIE Online platform[320]

Interviewees from government institutions cite implementation challenges in fully embedding ICT in curricula, especially in public schools that lack basic amenities, including internet access.[321] At the tertiary level and in institutions of higher learning, several institutions offer ICT courses as part of their curriculum. Interviewees noted that skills provided by the local educational institution are more theoretical in nature with limited opportunities for applied learning. CUBE Zanzibar set to bridge that gap with its array of training, seminars and programs.[322] Self-learning—particularly of digital skills such as coding, software development, and marketing—is gaining ground, but there are no structures in place to assess or to provide mechanisms to formalize or advance these skills. [323]

318 Private sector startup, Sahara Ventures. Interview with DECA Team, July 2022.

319 Civil society organization. Interview with DECA Team, July 2022.

320 TIE Online platform http://online.fliphtml5.com/rwbnv/pifg/#p=10

321 Civil society organization. Interview with DECA Team, July 2022. Online.

322 Private sector startup. Interview with DECA Team, July 2022. Online.

323 Private sector financial institution. Interview with DECA Team, June 2022. Online

Despite the absence of a digital talent strategy or of a digital skills framework, TIE emphasized the importance of addressing gaps in the digital talent pool at various levels. A national digital skills assessment has not been conducted to provide accurate data of skills available.[324] On its website, the ICT Commission provides a link for ICT practitioners to register in the ICT Professionals and Registration system (IPRS), which is a start in gathering data on existing ICT professionals. To date, 855 ICT practitioners have been registered, of which 57 are developers.[325]

FIGURE 24: Registration of ICT practitioners by ICT Commission

Source: ICT Commission 2022

INITIATIVES TO ADDRESS THE DIGITAL TALENT GAP ARE DIVERSE BUT SILOED

Various interventions are in place to address gaps in the digital talent pool. Led by the government, private sector, and development partners, they include the following:

- **Feed the Future Tanzania Advancing Youth:** A five-year (2017-2022) USAID-funded initiative in Iringa, Mbeya, and Zanzibar that raises awareness among rural Tanzanian youth about viable business options for rural economies. The initiative provides access to information, skills, and opportunities to ensure successful business startups and sustained employment. It aimed at strengthening youth entrepreneurship, readiness for the workforce, leadership, and health-related life skills.
- **Teach United:** A U.S.-based organization that works with CUBE Zanzibar to train teachers to develop digital skills to help them meet student needs.
- **CUBE Zanzibar and State University of Zanzibar** partner to provide training on social media marketing as an income-earning online business.[326]
- **Resilience Academy:** A partnership between the GoT, World Bank, and FCDO to promote innovation and teach microwork skills to youth. Over the last three years, 1,280 students have benefitted from 10-week industrial placements.[327]
- **Digital Opportunity Trust (DOT):** Established in Tanzania for nine years, DOT works with more than 400 youth to build digital and entrepreneurship skills. The program targets youth, particularly women, aged 18-35 years. One recurrent outcome is a mindset shift that motivates participants to start their own businesses, initially with basic phones and later using smartphones. Women with small businesses can post their businesses online, gaining access to new markets. [328]

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324 Civil society organization. Interview with DECA Team, July 2022.

325 "ICT Professionals Registration System (IPRS)," IPRS (ICT Commission Tanzania). Accessed September 18, 2022. https://iprs.ictc.go.tz/index.php/login.

326 Private sector startup. Interview with DECA Team, July 2022. Online.

327 "Tanzania Economic Update, June 2020: Addressing the Impact of COVID-19." 2020. Worldbank.Org, 2020. https://openknowledge.worldbank.org/handle/10986/33878 License: CC BY 3.0 IGO.

328 International development organization. Interview with DECA Team, July 2022. Online.

BOX 12: RLabs building digital talent among less privileged youth through a shift in mindset

RLabs, in partnership with COSTECH, adopted an innovative and inclusive model that targets grassroots businesses and marginalized Tanzanian youth. RLabs sees beyond funding limitations and imparts business acumen through a growth mindset. The support is not based on funding, but on supporting vulnerable youth to develop a mindset shift that can lead to starting their own businesses or expanding existing businesses. Participating youth are mostly from impoverished backgrounds and have limited education. Only 52 percent of them have completed primary education. At the point of enrollment, the digital literacy levels of the youth are low and most have basic phones. They are encouraged to join savings groups such as Chomoka to build a capital base.

Inclusivity is ensured by designing programs to meet the needs of young women and girls. Young mothers in particular face obstacles in finding time to attend the training programs. To address this challenge, the programs are designed to accommodate young mothers and are facilitated in their communities at times convenient times for them. The program runs mostly in rural areas and only began to scale in 2020. So far, it has reached 5,000 youth. RLabs aspires to reach additional youth through a more consolidated training program that delivers the same impact in shorter time periods.

DIGITAL TELECENTERS HAVE ACCELERATED DIGITAL SKILLS ACQUISITION IN SOME COUNTRIES

The Sengerema Community Multipurpose Community Telecentre in Tanzania was implemented as part of a national telecentre initiative. While the model did not scale to other geographical areas, it registered impact, particularly in the development of ICT skills and enhancing access to information, while also bridging the gender gap by increasing the number of female participants.[329] Rwanda has adopted a public and private sector approach to Digital Telecenters as outlined in Box 13.

BOX 13: Rwanda Telecenters

Rwanda's National Information and Communication Infrastructure Plan for 2006-2010(NICI-2010) outlined a plan to have government-owned multipurpose community telecenters in most rural areas, enabling rural communities to have access to basic ICT services in order to boost their competitiveness. Since 2008, 30 telecenters have been set up in rural areas across the country. Rwanda Telecenter Network (RTN) is a private entity that seeks to bridge the digital divide between urban and rural areas and to empower rural communities. In 2010, RTN conducted a study to identify all existing telecenters in Rwanda and extended membership offers to entrepreneurs to receive RTN's support and to participate in its projects. RTN developed a variety of activities to strengthen and support Rwandan telecentres in rural and semi-urban areas.

RTN Telecenter model:

- Telecenters are locally owned by entrepreneurs to ensure economic sustainability.
- They offer diversified services beyond basic ICT services and training, and increasingly offer e-government and business development services to individuals and MSMEs.
- Small and locally-owned centers are better linked with local communities and can deliver services that are more adapted to local needs.

RTN has a network of more than 2,500 telecenters which facilitate job creation and empower local communities through access to information and communication tools. They increase employment opportunities and reinforce the creation of local enterprises.

Sources: Newtimes[330], Rwanda Telecenter Network[331] and ILO Chapter 5[332]

329 Mbangala, Boniface, and Athumani Samzugi. "The Role of Telecentres in Tanzania's Rural Development. A Case Study ..." University of Nebraska - Lincoln, August 2014. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=3212&context=libphilprac.

330 Zigira, Alphonse. "18 More Telecentres to Boost Rural Access." The New Times, August 25, 2009. https://www.newtimes.co.rw/article/24607/18-more-telecentres-to-boost-rural-access.

331 "About Rwanda Telecenter Networks." Rwanda Telecenter Network. Accessed September 30, 2022. https://rtn.rw/about/.

332 "Policy Brief - International Labor Organization." The Nyamata Telecentre and the Rwanda Telecentre Network (RTN), Rwanda. ILO. Accessed September 30, 2022. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_824865.pdf.

EMERGING TECHNOLOGIES ARE YET TO REACH SCALE, BUT SOME EARLY USE CASES DRIVE ADOPTION

Some use cases for emerging technologies have been identified, mostly in early stages. Technology provider FastHub is using AI to facilitate mobile surveys through WhatsApp so businesses can collect feedback from their end-users. Savings groups use AI to manage attendance of members.

Until rural connectivity and access challenges are more comprehensively addressed, adoption of emerging technologies will continue to be slow.

BOX 14: Bank of Tanzania Central Bank Digital Currencies (CBDC)

In 2021, the BoT Governor notified the public that the bank would not issue cryptocurrencies, but parties interested were welcome to apply for licensing and to trade at their own risk. In a departure from a warning issued in 2019, the Governor added that "We (BoT) can't outlaw something that we are not yet competent with or regulate a game that we don't really know how it is played."[333]

The BoT announced plans to launch its own CBDC in 2021. [334] Prep teams are currently expanding research into digital currencies and strengthening their capacities. More than 100 countries are exploring CBDCs globally; 9 percent have launched and 41 percent, including Tanzania, are in the research phase. Nigeria introduced eNaira in October 2021 and Ghana is piloting the eCedi. [335]

333 "Bank of Tanzania Cautious over Digital Currencies," The Citizen, December 11, 2021. https://www.thecitizen.co.tz/tanzania/news/business/bank-of-tanzania-cautious-over-digital-currencies-3649222.

334 A central bank digital currency (CBDC) is a digital form of central bank-backed money and represents money that is a direct liability to the central bank. Several central banks across the world are experimenting with CBDCs, with most at very early stages.

335 Lu, Marcus, "Visualized: The State of Central Bank Digital Currencies," Visual Capitalist, August 25, 2022, https://www.visualcapitalist.com/visualized-the-state-of-central-bank-digital-currencies/.

SECTION 3:

Recommendations

The international development community can support and strengthen Tanzania's digital ecosystem in many ways. This section outlines recommendations for specific actions and partnerships as well as general guidance for digitally enabled programming, The list is organized by DECA pillar and cross-cutting themes.

Table 11 summarizes each recommendation as follows:

- **What:** Links to the recommendation details.
- **Why:** Provides the motivation or intended impact of the recommendation.
- **How:** Summarizes the approach actors in the international development community can use to implement the recommendation.

The **detailed recommendations section that follows** provides further explanation of how to implement each recommendation, including:

- Relevant context, recommended partners, and ways to build on existing programming
- Important considerations, including unknowns and potential challenges
- Key opportunities to draw upon and align with the Principles for Digital Development and/or the SDGs

When acting on any of these recommendations, information on best practices in digital development program design can also be helpful. The Principles for Digital Development[336] and the USAID Digital Investment Tool are useful sources.

336 These principles are nine living guidelines that provide best practices for every phase of the project life cycle. They were created in consultation with various international development organizations, including USAID.

TABLE 11: Summary of DECA recommendations

	WHAT?	WHY?	HOW?	CONNECTIONS TO SDGS AND DIGITAL PRINCIPLES
	CROSS-CUTTING			
1	Strengthen cybersecurity through deepening the talent pool, raising public awareness, and providing technical assistance to the government	Safer and more resilient digital systems, networks, organizations, and individuals ensure security, privacy, and long-term sustainability.	Build a more robust cybersecurity talent pool through partnerships with higher education and globally recognized cybersecurity institutions. Launch cybersecurity public awareness campaigns and support a countrywide multi-stakeholder approach to strengthened cybersecurity. Bolster policy-level capacity by reviewing, promoting, and potentially updating the National Cybersecurity Framework. Include a focus on capacity-building for government personnel especially at the local level.	**Digital Principles:** Be Collaborative, Address Privacy & Security **SDGs:** 12, 11
2	Increase digital adoption and use by taking a comprehensive approach to digital literacy programming: policy, inter-donor coordination, digital literacy training	Increased safe adoption and use of digital tools and services, decreased digital divides, and increased economic opportunities.	Work with MoEVT to review and update ICT on education policies. Consider creating a digital literacy programming database, digital literacy community of practice, and integrate user- and community-level digital literacy training that includes cyber hygiene into all activities that have a digital component.	**Digital Principles:** Understand the Existing Ecosystem, Build for Sustainability, Reuse and Improve **SDGs:** 4, 8, 10

	WHAT?	WHY?	HOW?	CONNECTIONS TO SDGS AND DIGITAL PRINCIPLES
PILLAR 1: DIGITAL INFRASTRUCTURE & ADOPTION				
3	Enable innovative solutions for last-mile connectivity through co-creation and competition promotion	Reduced digital divides and increased connectivity for all.	Provide technical assistance to support policies that enable last-mile connectivity expansion using both traditional and innovative technologies. Consider hosting a co-creation event to right-size the technology and business model for the target population. Work with UCSAF and the World Bank to encourage alternative business models. Explore avenues to promote cost-efficient infrastructure expansion such as alignment with expanded electrification and pro-rural competition and collaboration in the telecom market.	**Digital Principles:** Design for Scale **SDGs:** 9a and 9c
4	Increaes device affordability to promote more widespread usage	Decreased usage gap and increased access for more Tanzanians.	Advocate for lower priced devices by conducting research on the effect of taxes on access to smartphones and exploring programs that facilitate disbursement of refurbished smartphones. Support innovative business models such as device acquisition on credit (buy now, pay later) to minimize cost burden for users.	**CDCS:** DO2 and DO3 **Digital Principles:** Understanding the Existing Ecosystem **SDGs:** 9c
5	Foster increased meaningful connectivity through the creation of locally relevant content with and for the end users	More inclusive and relevant solutions that can enable economic opportunities and social cohesion.	Support development partners in including locally relevant content with an emphasis on digital content in Swahili language and content that supports economic productivity. Invest in initiatives that digitalize relevant public service and information delivery to the bottom of the pyramid with a focus on creating content relevant for youth (including weather forecast, seed varieties, maternal healthcare, educational content for parents). All content should be created with target populations, using an approach that centers users as creators and consumers.	**Digital Principles:** Design With the User, Be Data Driven, Be Collaborative, and Build for Sustainability **SDGs:** 9c

	WHAT?	WHY?	HOW?	CONNECTIONS TO SDGS AND DIGITAL PRINCIPLES
PILLAR 2: DIGITAL SOCIETY, RIGHTS, & GOVERNANCE				
6	Promote dialogue to review and repeal laws that constrict digital rights	Expanded digital rights and freedoms for citizens.	Advocate for legal reform by initiating strategic partnerships with local and international actors. Coordinate advocacy across CSOs to create synergy for the expansion of digital rights. Engage large tech companies to promote and advocate for safe digital spaces. Encourage protection of privacy and safe digital spaces for marginalized groups such as sexual and gender minorities.	**Digital Principles:** Design With the User, Build for Sustainability, Address Privacy & Security, and Be Collaborative **SDGs:** 5,16
7	Support resilience of CSOs to advocate for digital rights and democracy including freedom of expression online	Strengthened CSOs as sustainable vanguards for digital rights and democracy.	Build operational capacity and sustainability of CSOs. Boost CSO awareness and capacity to protect online freedoms. Facilitate CSO collaboration with the private sector based on shared interests.	**Digital Principles:** Understand the Existing Ecosystem, Design for Scale **SDGs:** 16
8	Support open government and partnerships for development of digital government solutions to strengthen local government in priority sectors	Open government grounded on enhanced collaboration to develop innovative safe digital solutions for local governance.	Apply lessons learned across sectors, including from health, agriculture, and education to address marginalized communities which may include women, youth, rural communities, which may face discrimination due to sexual orientation. Enhance operational interoperability with a whole-of-government approach. Encourage GoT to rejoin the Open Government Partnership (OGP). Incorporate cybersecurity considerations in digital government solutions design.	**Digital Principles:** Be Data Driven; Use Open Standards, Open Data, Open Source and Open Innovation **SDGs:** 4, 16
9	Encourage a multi-stakeholder approach to internet governance in support of increased transparency and security	Multi-stakeholder internet governance that ensures a safe and secure internet.	Promote multi-stakeholderism in internet governance for DNS, IXP, and secure data flows. This could include technical assistance to GoT entities such as MICIT, TCRA, and the ICT Commission to embed multi-stakeholderism in internet governance policymaking.	**Digital Principles:** Be Collaborative **SDGs:** 9, 16, 17

	WHAT?	WHY?	HOW?	CONNECTIONS TO SDGS AND DIGITAL PRINCIPLES
PILLAR 3: DIGITAL ECONOMY				
10	Support the enabling environment for digital financial services by strengthening regulatory capacity for oversight and ease of doing business	Increased digital financial inclusion and market- driven economic growth.	Facilitate capacity-building for emerging technologies for regulators and policy makers. Improve implementation of tax measures that have an impact on the digital economy. Support the BoT to increase data-driven decision-making through a more robust SupTech platform.	**Digital Principles:** Understand the Existing Ecosystem, Be Data Driven **SDGs:** 17.18
11	Boost the digital talent pool by creating digital telecenters and community ICT and cybersecurity labs, especially in peri-urban and rural areas	Increased workforce capacity to leverage digital skills for improved economic outcomes.	Develop digital telecenters located strategically in peri-urban and rural areas can improve access to opportunities (especially for youth) to acquire digital literacy and cybersecurity skills.	**Digital Principles:** Design With the User, Build for Sustainability **SDGs:** 9
12	Increase the efficiency of the tech startup ecosystem through coordination and specialization	Increased capacity to leverage innovation to solve development challenges.	Match funding to innovators and build coordination and specialization capabilities for accelerators, incubators, and hubs in partnership with the Buni Innovation Hub. Through the TSA, develop exchange programs between multi-national companies and Tanzanian technology startups for purposes of knowledge transfer (e.g., Baobab Africa and 'Y combinator awards).	**Digital Principles:** Be Collaborative **SDGs:** 9
13	Advance digital trade and e-commerce through technical assistance for policy development and capacity building	Strengthened regional integration, national competitiveness, and - at a micro level - access to new markets.	Support efforts to develop and implement a digital trade and e-commerce strategy. Facilitate initiation of coordinating body for digital trade and e-commerce. Support research to assess digital readiness of businesses in Tanzania and build capacity and provide technical support for competitive participation in AfCFTA for digital businesses.	**Digital Principles:** Be Collaborative **SDGs:** 17

DETAILED RECOMMENDATIONS

1. STRENGTHEN CYBERSECURITY THROUGH DEEPENING THE TALENT POOL, RAISING PUBLIC AWARENESS, AND PROVIDING TECHNICAL ASSISTANCE TO THE GOVERNMENT AND TO PARTNERS

As data and information are increasingly processed and stored online, cybersecurity needs to be prioritized in the public and private sectors. In Tanzania, health data, personal and corporate financial information, and various government data are stored online whether the user is aware or not. The country's ability to safeguard its digital services and data infrastructure against threats is especially necessary to build trust among users and protect itself from predictable and avoidable threats. While there is some disagreement between international cybersecurity indices on Tanzania's global ranking, the country has clearly made progress in cybersecurity in recent years. With a robust national CERT, multiple cybersecurity degree programs, and relatively strong cyber crime enforcement, Tanzania is well positioned to become a regional cybersecurity leader. [337] However, gaps in cybersecurity talent, local public sector capacity, policy implementation, and multi-stakeholder cooperation persist.

A. Build a more robust cybersecurity talent pool through partnerships with higher education and global cybersecurity institutions. While cybersecurity is part of various ICT related degree programs in Tanzania, only four explicitly focus on cybersecurity: two at the University of Dodoma, and one each at the Institute of Accountancy Arusha and Unique Academy Dar es Salaam. Increased specialized training opportunities at higher education institutions will improve the cybersecurity talent pool, creating a strong pipeline of young, new talent to ensure that growing cybersecurity staffing needs are met in Tanzania's public and private sectors. However, as cybersecurity is a relatively new field a sizable group of seasoned experts does not yet exist in Tanzanian academia. The international development community can provide technical assistance to universities to review relevant existing curricula and develop new curricula. Existing, globally recognized resources such as those produced by ISACA's CISA and CISM courses and the Global Cyber Security Capacity Center (GCSCC) Cybersecurity Capacity Maturity Model (CMM) can be helpful.

B. Launch cybersecurity public awareness campaigns. International development community actors can design and launch cybersecurity awareness campaigns targeted to a range of stakeholders, including government employees, private sector companies, civil society organizations, and the general public. Identify organizational partners and champions within organizations to help tailor the design and rollout of the awareness campaign. Potential channels include company-wide newsletters and message boards, civil society communities of practice, social media groups, targeted SMS campaigns, and radio networks. In designing and launching these campaigns, it is important to employ user-centered design to ensure the greatest impact.

C. Support a countrywide multi-stakeholder approach to strengthened cybersecurity. Bring together stakeholders such as the ICT Commission, TCRA, TISPA, eGA, key private sector actors (e.g., ISPs, MNOs, and financial institutions), academia, data privacy groups, and CSOs to promote a common understanding of cybersecurity goals, vulnerabilities, and best practices. During this type of multi-stakeholder convening, international development community actors can raise awareness of and tap into resources from regional, continental, and global resources on cybersecurity resilience. These resources can be utilized to encourage the GoT to take advantage of the AU Cyber Security Expert Group and the African Cybersecurity Center for promoting cybersecurity and the investigation of cybercrime in the continent.[338]

337 Global Cybersecurity Index 2020. International Telecommunication Union. (ITU)https://www.itu.int/en/ITU-D/Cybersecurity/Pages/global-cybersecurity-index.aspx

338 "Togo and UN sign MoU to establish the African Cybersecurity Centre." United Nations. August 16, 2022. https://www.un.org/africarenewal/magazine/september-2022/togo-and-un-sign-mou-establish-african-cybersecurity-centre

D. Review and promote implementation of the National Cybersecurity Framework. The National Cybersecurity Strategy 2018-2023 is the key government strategy for combating cybersecurity threats and improving cybersecurity posture. Support can be provided to the government to better understand the effectiveness of the document by engaging stakeholders from the private sector, various government ministries, academia, and civil society to ascertain their perceptions and knowledge of the Framework. This can help the government implement a unified approach to combatting cybersecurity threats and prepare for an updated Framework when the current one expires in 2023.

E. Support government review of its staffing protocol to include a cybersecurity cadre in public staffing. Provide technical assistance to identify gaps in the current staffing of critical organizations including the government, to assess cybersecurity needs, and to propose proper human resource configuration to include both technical and administrative cybersecurity personnel.

RELEVANT RESOURCES

- USAID Cybersecurity Primer (USAID, 2021)
- NIST Online Informative Reference Catalog (NIST, 2022)
- National Capabilities Assessment Framework (European Union Agency for Cybersecurity, 2020)
- NIST Cybersecurity Framework – Success Stories (NIST, 2021)

> *This recommendation emphasizes the importance of cybersecurity drawing from the Principles for Digital Development, Be Collaborative and Address Privacy & Security. This recommendation is most relevant to SDGs 12, (Ensure sustainable consumption and production patterns) and 11 (Make cities and human settlements inclusive, safe, resilient and sustainable).*

2. INCREASE DIGITAL ADOPTION AND USE BY TAKING A COMPREHENSIVE APPROACH TO DIGITAL LITERACY PROGRAMMING: POLICY, INTER-DONOR COORDINATION, AND DIGITAL LITERACY TRAINING

Digital literacy is one of the main barriers to increased adoption and use of digital technologies. Improving digital literacy at all levels of society is critical to ensuring equitable, inclusive, and economically and socially productive digital development. As donor projects expand connectivity or introduce a new digital tool, project participants should be supported to sustain their adoption and use of the new tool or technology. By building a robust digital literacy agenda, the international development community can ensure that digital development investments result in meaningful connectivity. A comprehensive approach to digital literacy programming can consider the following:

A. Support the Ministry of Education and Vocational Training (MoEVT) to review and update ICT in education policies. In 2007, the MoEVT established the Information and Communication Technology (ICT) Policy for Basic Education.[339] While the policy outlines the importance of integrating ICT at various levels in the education system, its implementation does not seem to have been tracked and it has not been updated since its creation. Similarly, the ICT Competency Standards for Teachers in Tanzania have not been updated since 2015. Technology applications in the education sector and the skills required to apply them to student learning and teacher pedagogical approaches evolve quickly. Tanzania's policy framework has not kept pace. Support can be provided to the MoEVT to update both policies by providing technical assistance to: (1) evaluate the relevance in today's

339 "UNITED REPUBLIC OF TANZANIA INFORMATION & COMMUNICATION TECHNOLOGY (ICT) POLICY FOR BASIC EDUCATION." Ministry of Education and Vocational Training (MoEVT). August 2007.https://planipolis.iiep.unesco.org/sites/default/files/ressources/tanzania_ict_policy_for_basiceducation_2007.pdf

environment; (2) take stock and record implementation; (3) update the policies if needed; and (4) develop a monitoring and evaluation framework to track implementation moving forward.

B. Create a digital literacy programming database. Create an online, searchable digital literacy programming database that catalogs the various digital literacy programs in the country. Digital literacy was identified as a key barrier to increased adoption and use of digital technologies in Tanzania, and there are various initiatives that support digital literacy skill-building across the population such as Ubongo Kids, Elimu Tanzania, Shule Direct, UNESCO's Empowering Adolescent Girls and Young Women through Education Tanzania, and recently UNICEF's Giga Project. Actors can coordinate and take stock of existing projects that contain elements of digital literacy. This exercise can feed into the creation of a publicly available digital literacy programming database to increase coordination and knowledge-sharing and decrease duplication and reinventing the wheel. It can also help identify geographies or populations that are over-saturated or under-saturated in terms of digital literacy program delivery. The international development community could then make data-driven decisions about how, when, and where to deliver targeted digital literacy activities.

C. Integrate community-level digital literacy training into all activities that have a digital component. To ensure sustained user uptake and intended impact, it is important that any activity that involves digital technologies includes a digital literacy skill-building component. For example, if an agriculture project plans to use a digital platform for extension services it should provide digital literacy training to all project participants. If a health project plans to use SMS or a digital reporting platform to track maternal health, it should provide digital literacy training to health workers and participating mothers. Consider creating a digital literacy community of practice to support consistency and reduce duplication. As partners increasingly build digital literacy training into their activities, they can share curricula and lessons learned, including how to tailor digital literacy training to different target groups (e.g., women, youth, farmers, health workers, and local government officials). This community of practice can also use the digital literacy programming database (part B above) as a key resource for developing their own digital literacy training and delivering it either independently or through partners listed in the library. It is important that digital literacy training includes cyber hygiene and an understanding of licit and illicit data markets. If project participants are increasingly online it is critical that they do so safely, securely, and with transparency on how and by whom personal and behavioral data generated through digital engagement is collected and used.

RELEVANT RESOURCES:

- Digital Literacy Primer (USAID, 2022)
- European Union DigComp 2.0
- Learn to Discern (L2D) (IREX)

> *This recommendation aligns with Principles for Digital Development, Design with the User and Build for Sustainability and with SDGs 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), 10 (Reduce inequality within and among countries) and 11 (Make cities and human settlements inclusive, safe, resilient and sustainable).*

3. ENABLE INNOVATIVE SOLUTIONS FOR LAST-MILE CONNECTIVITY THROUGH CO-CREATION AND COMPETITION PROMOTION

Reliable, robust, and secure connectivity is essential to the access and use of a digital revolution. Tanzania's topography consists of challenging terrain for deployment of telecommunication infrastructure, particularly in

mountainous regions such as the Southern highlands. In 2021, 65 percent of the population lived in rural areas, with some communities living on small islands such as Ukerewe in Lake Victoria. These geographical characteristics and the sparse population density in rural areas make it difficult and unviable for telecom operators to deploy internet infrastructure, particularly data-enabled networks, to the entire population. This bottleneck hampers government efforts to deliver public services online, constrains private sector innovation, and undermines the country's digital and development agenda. Consider the following to support last-mile connectivity:

A. Work with the Tanzania Universal Communications and Services Access Fund (UCSAF) to encourage innovative business models. Promote the World Bank's work through the Digital Tanzania Project to increase innovation in UCSAF by introducing reverse auctioning in the provision of tenders to implement the Fund's network expansion. Reverse auctioning will ensure that funds are spent in the most efficient manner. Also encourage UCSAF to support and recognize the viability of providers beyond the licensed operators. UCSAF can play a greater role in promoting innovative technologies to extend digital infrastructure, but may require support and technical assistance. Some of the targeted technologies could include the satellite technology and balloon technology mentioned earlier.

B. Embed last-mile connectivity in the rural electrification agenda. Since 2007, Tanzania has implemented its rural electrification agenda to push last-mile electrification through the Rural Electrification Agency (REA). The campaign provides subsidized power to ensure that rural populations can afford power connection. Promote rollout of the last-mile connectivity infrastructure in tandem with electrification efforts in the following ways:

- ***Extend the fiber network in the last-mile with the power networks.*** This technique is already implemented in the national fiber backbone as the national power grid has a fiber network alongside that is part of the national ICT backbone. The new installation of the NICTBB will jointly be included in the national grid power network. There is opportunity for this approach to be used to extend the network beyond the national backbone, thus deepening the national fiber infrastructure to the rural areas. The international development community could bring the relevant government stakeholders (TCRA, TANESCO, REA, Tanzania Railroad Corporation (TRC)) and private sector ISPs to the same table to better understand the costs and benefits of this option.
- ***Supply subsidized and reliable power to network infrastructure in rural areas.*** One of the main recurring costs for last-mile infrastructure is the provision of clean and reliable power in tower sites in remote areas. By taking a holistic approach to development, actors in the international development community could work with the government to consider last-mile connectivity as a key input to rural development, and thus extend the subsidy of power charges to network sites in rural areas. This initiative could reduce maintenance costs of last-mile infrastructure, increasing the viability of both commercial and non-commercial network service providers.

C. Promote effective pro-rural competition and collaboration in the telecom market. Despite the competitive market in Tanzania with six players in mobile broadband, four of whom have more than 10 percent market share, expansion of the broadband network to rural areas is still limited. Last-mile connectivity, especially for 3G and technologies mentioned above, is still at low levels compared to other countries in the region. Studies show that, even with healthy competition, if markets are left alone remote areas tend to be underserved by traditional operators.[340] Promote competition among existing telecommunication companies to invest in extending their network in rural areas. Potential strategies include:

340 "Challenges for Competition Policy in a Digitalised Economy." European Parliament. Directorate-General for Internal Policies. 2015. https://www.europarl.europa.eu/RegData/etudes/STUD/2015/542235/IPOL_STU(2015)542235_EN.pdf

- Encourage competition among tower infrastructure companies by setting targets for installation of tower infrastructure in rural areas.
- Foster collaboration between tower companies and the national power supply company (TANESCO), the Rural Electrification Agency (REA), MNOs, and other industry stakeholders.
- Promote the sharing of passive infrastructure, roaming services, and open-RAN technologies among telecom companies to reduce redundancy costs and increase consumer welfare.

In general, closing gaps in last-mile connectivity is key to bridging the access digital divide and is the foundation on which digital services are built. The government has built a plethora of digital services in recent years. However, in the absence of last-mile connectivity, many Tanzanians who are already disadvantaged cannot use those services. Tackling challenges in last-mile connectivity is necessary for development, and as a fundamental right to access to public services.

RELEVANT RESOURCES:

- Barriers to investing in last-mile connectivity (USAID, 2020)
- The Last-mile Internet Connectivity Solutions Guide: Sustainable Connectivity Options for Unconnected Sites (ITU, 2020)
- Connecting Africa through Broadband (ITU, 2019)
- Internet for All Investment Tool (World Economic Forum)
- Better Connectivity, better programs: how to implement a broadband demand aggregation program (USAD, 2018)
- Closing the Access Gap: Innovation to Accelerate Universal Internet Adoption (USAID, 2017)
- Business Models for the Last Billion: Market Approaches to Increasing Internet Connectivity (USAID, 2016)
- Digital Broadband Partnership (World Bank, 2022)
- Investing to Connect (USAID 2019)
- Closing the Coverage Gap: How innovation can drive rural connectivity (GSMA, 2019)

> *This recommendation details how to create access to connectivity in a way that embodies the Principle for Digital Development, Be Collaborative and also supports SDG 9c (Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020).*

4. IMPROVE DEVICE AFFORDABILITY TO PROMOTE MORE WIDESPREAD USAGE

The GoT has taken several steps to connect the unconnected, including establishing the UCSAF to support the expansion of digital infrastructure in rural areas. However, internet penetration and therefore use cases for device ownership in rural areas remains low. Access to communication services is one step toward the adoption and use of communication services. The unaffordable cost of devices and data can exacerbate the digital divide, especially among rural, suburban, and urban areas. The international development community can leverage a public-private partnership to minimize the cost of smartphones and data, specifically in rural areas. Consider the following:

A. Subsidize device and data costs in underserved rural areas. UCSAF aims to partner with telecommunication service providers to guarantee access to communication services in urban underserved and rural areas. The fund is mostly focused on supporting infrastructure installation to facilitate access to communication services. However, that is only part of the equation. The cost of smartphones is high for the average Tanzanian, particularly

for those in rural areas. Engage UCSAF to consider subsidizing smartphone and data costs in rural areas to connect the unconnected and boost adoption and use of services in rural areas.

B. Advocate for waiving the value-added tax (VAT) on smartphone devices. The current VAT makes devices even more unaffordable for underserved populations. Advocate for a government waiver on the VAT on smartphones for citizens under a certain income level. While the tax was waived in 2021, it was restored in 2022.

C. Partner with global and regional manufacturers to assemble mobile phones in the country or within the region to drive device affordability. As an example, look to Rwanda's development of the first African smartphone. International development actors can consider engaging large manufacturing companies and gain support from the government to explore the viability of this option. An early step could be to identify and establish a hub for assembling digital devices in Egypt, South Africa, or Ethiopia.

Any efforts to provide or subsidize devices should include efforts to ensure that the devices do not come pre-packaged with data-leaking applications that cannot be removed, have updated and secure operating systems, and include access to approved antivirus software and protections.

RELEVANT RESOURCES:

- Closing the Access Gap: Innovation to Accelerate Universal Internet Adoption (USAID & Caribou Digital and the Digital Impact Alliance, 2017)
- Expanding Mobile Phone Access and Ownership (USAID & DAI, 2020)
- Getting Phones in Farmer's Hands (ICTforAg, 2020)

> *This recommendation is in the spirit of the Principle for Digital Development, Understand the Existing Ecosystem and SDG 9c (Significantly increase access to information and communications technology and strive to provide universal and affordable access to the internet in least developed countries by 2020).*

5. FOSTER INCREASED MEANINGFUL CONNECTIVITY THROUGH THE CREATION OF LOCALLY RELEVANT CONTENT WITH AND FOR END USERS

Consumer friendly digital solutions that respond to consumer habits and challenges are more likely to be adopted by consumers. Solutions that offer weather forecasts and advise farmers in different locations when to start planting based on the rain pattern are more likely to be adopted because they address a specific and high utility need. Developing a consumer-centric digital solution is crucial to spur adoption and sustained use of digital services. Consider the following to build consumer-centric digital solutions:

A. Promote the creation of digital content in Swahili. Swahili is the national language of Tanzania and is universally spoken. However, most digital content is available in English. International development actors can ensure that all online content created through current and future activities is made publicly available in Swahili. This could include content across the sectors in which it works, including health, education, agriculture, civic empowerment, and economic empowerment.

B. Involve end-users throughout the project design phases. Human-centered design is crucial when creating digital solutions. Digital solutions must provide answers to challenges facing specific communities. This can be attained by involving end-users from the ideation to the implementation stage. Understanding consumer demand is crucial to determining the appropriate cost for access to services after commercialization. Even if a service is user-centric, if the cost is not affordable for target end users it will not be adopted.

C. Partner with government entities to establish zonal innovation and ICT learning hubs. There are several innovation hubs in Tanzania but they are not equally distributed across the country. Most are in Dar es Salaam and a few are scattered in other cities. International development actors could work together to establish zonal innovation hubs (centers of excellence) where community members could experiment and learn new digital skills and access relevant online content. If community members participate in innovation events in their zonal hubs, they may be more likely to develop technology solutions that support their communities (see also recommendation 11, part A below).

D. Promote youth-related content. More than 50 percent of the Tanzanian population is under the age of 18, and more than 70 percent are under 30.[341] Youth are champions of the digital era and can be change agents in their society. International development actors can consider creating social media content that targets youth across its projects, and could host meet-ups for youth to learn from one another how to use digital platforms including social media to engage socially, economically, and civically. International development actors should ensure that all youth involved in these activities are made aware of how to operate online safely and securely.

RELEVANT RESOURCES:

- Digital platforms and value creation in developing countries: Implications for national and international policies (UNCTAD, 2020)
- Gig work on digital platforms: Executive Summary - Learning, Evaluation and Research Activity (LER II) (USAID, 2019)
- Realizing benefits: digital as an enabling force for development (USAID, 2022)
- USAID Digital Agriculture Ecosystem Assessment – Uganda (USAID, 2022)

> *This recommendation aligns with the Principles for Digital Development, Design With the User, Be Data Driven, Be Collaborative, and Build for Sustainability. The recommendation is also aligned with SDG 9c (Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020).*

6. PROMOTE DIALOGUE TO REVIEW AND REPEAL LAWS THAT CONSTRICT DIGITAL RIGHTS

The current Administration in Tanzania has publicly stated its willingness to amend several of the laws that restrict digital rights in Tanzania. The opportunity to expand and protect digital freedoms is compelling. Actors in the international development community can consider taking the following actions:

A. Advocate for legal reform by initiating strategic partnerships with local and international actors. Advocate for legal reforms with local CSOs (JamiiForums, Twaweza, Launchpad Tz, Media Convergency) and regional and international CSOs (Article 19, CIVICUS, CIPESA). Consider engaging actors who are well positioned to effect change with specific stakeholder groups and on digital rights-specific topics.The objective of each partnership should be clearly outlined from the outset to maximize the comparative advantage of each partner. Consider the value in partnering with international and regional organizations. They may be relatively better resourced, can provide regional or global comparisons, and can help elevate the urgency of legal reform in Tanzania to broader audiences.

B. Coordinate advocacy across CSOs to create synergy for the expansion of digital rights. International development actors can work together to unite disparate advocacy efforts under the common goal of advancing the protection of digital rights and the dismantling of the repressive legal framework.

341 "Young people engagement: A priority for Tanzania." UNICEF Tanzania. https://www.unicef.org/tanzania/young-people-engagement-priority-tanzania

C. Engage large tech companies to promote and advocate for safe digital spaces. Safe online spaces are those where citizens can easily access information and relevant resources, exercise their right to freedom of expression, and trust that their data are protected. The international development community can explore engaging tech companies to ensure that their platforms protect users and promote safe digital spaces, despite the more repressive legal environment. There may also be an opportunity for the international development community to leverage the influence of large tech companies to advocate for legal reform. This could entail hosting a series of roundtable discussions with key personnel from these companies in Tanzania or the East African region to discuss current and best practices and how to ensure that users are protected and feel safe on their platforms in the Tanzanian context. Themes for the roundtable discussions could include: the role of the private sector in ensuring public clarity around the data protection law; good practices in content moderation; protection of vulnerable populations (e.g., youth and women and girls) online; protection of activists and journalists online; tactics for promoting locally relevant content creation.

RELEVANT RESOURCES

- Surveillance Law in Africa: a review of six countries (Institute of Development Studies, 2021)
- Internet universality indicators: a framework for assessing Internet development (UNESCO, 2019)
- 2020 Ranking Digital Rights Corporate Accountability Index (Ranking Digital Rights, 2020)
- Privacy Imperiled- Analysis of Surveillance, Encryption and Data Localization Laws in Africa Report (CIPESA, 2022)

> *This recommendation details how to approach and entrench digital rights in a manner that embodies the Principles for Digital Development, Design With the User, Build for Sustainability, Address Privacy & Security, and Be Collaborative. It supports SDGs 5.b (Achieve gender equality and empower all women and girls) and 16.10 (Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements).*

7. SUPPORT THE RESILIENCE OF CIVIL SOCIETY TO ADVOCATE FOR DIGITAL RIGHTS AND DEMOCRACY, INCLUDING FREEDOM OF EXPRESSION ONLINE

Over the last decade, the GoT penalized and weakened digital rights CSOs (see Pillar 2, section 2.2). According to CIVICUS, CSOs in Tanzania are few and weak and require support due to the hostile environment. Listed below are a few ways to promote resilience against digital repression:

A. Build operational capacity, sustainability, and online safety of CSOs. CSOs in Tanzania tend to have low operational capacity. International development organizations can provide technical assistance to CSOs in support of human resources, finance, and legal issues. Another critical component of capacity and sustainability for CSOs is digital resilience (e.g., their ability to prevent, detect, and respond to any potential digital threat to their operations and security). CSOs are often staffed by lean teams with limited bandwidth and capacity. One way around this could be through the creation of a one-stop-shop operational support center for CSOs.

B. Boost CSO awareness and capacity to protect online freedoms. International development actors can promote a vibrant, resilient, and coordinated civil society that is equipped with the tools to protect itself online and advocate against digital repression through targeted capacity- building. A challenge raised by several CSOs is their understanding of digital rights, manifestation of digital repression, and appropriate ways to advocate and fight against this. International development actors can work with CSOs to create awareness of digital repression and promote advocacy for increased protection of digital rights.

C. Facilitate CSO collaboration with the private sector based on a shared interest in digital rights. Human Rights Impact Assessment (HRIA) is uncommon; only Vodacom has a framework for personal data protection. Weak data protection among telecom operators can facilitate surveillance. International development actors can consider convening key stakeholders from the private sector (telecoms, tech companies, financial institutions) and from CSOs to facilitate mutual understanding of one another's rights, interests, and obligations in the digital space. If the private sector and civil society are more interlinked and aligned as a critical mass, the government may be less likely to control or close the online space because of greater risks to large-scale economic and civic activity.

RELEVANT RESOURCES

- Open Government Partnership
- USAID Cybersecurity Team

> *This recommendation details how to approach and entrench human-centric digital ecosystem that embodies the Principles for Digital Development, Understand the Existing Ecosystem and Design for Scale, and supports SDGs 16.7 (Ensure responsive, inclusive, participatory and representative decision-making at all levels) and 16.10 (Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements).*

8. SUPPORT OPEN GOVERNMENT AND PARTNERSHIPS FOR DEVELOPMENT OF DIGITAL GOVERNMENT SOLUTIONS TO STRENGTHEN LOCAL GOVERNMENT IN PRIORITY SECTORS

The international development community can help strengthen digital government solutions with the following approaches:

A. Apply lessons learned across sectors including from health, agriculture, and education to address marginalized communities. Actors in the international development community can facilitate inter-project information sharing, which could in turn facilitate inter-ministry information sharing. For example, a project working on data systems in the health sector may have lessons to share with a project working in public sector management systems. Information sharing could also be structured where there is a monthly, bi-monthly, or quarterly information sharing sessions with dedicated topics. Topics could include technical presentations on interoperable information systems, best practice for engaging and ensuring ownership by government counterparts, and inclusive data collection approaches with a focus on gender or youth, among other relevant topics.

B. Encourage GoT to rejoin Open Government Partnership (OGP)[342]. President Hassan's pronouncement for open, transparent, and accountable government is in line with OGP principles and rejoining the OGP would address issues regarding open government.[343] This is a low hanging fruit and members of the international development community can work together to nudge the GoT to rejoin.

All approaches to promote and develop digital government solutions, especially for marginalized communities, must include cybersecurity as a foundational prerequisite. This is particularly relevant when working with government stakeholders that may not have technical, physical, or financial cybersecurity capacity.

RELEVANT RESOURCES:

- Open Government Partnership - Digital Governance

342 "OGP Draft Strategy 2023-2028." Open Government Partnership. https://www.opengovpartnership.org/

343 "OGP Draft Strategy 2023-2028." Open Government Partnership. https://www.opengovpartnership.org/

- UN E-Government Survey 2020
- The public sector must reimagine cybersecurity to enable e-government ideal (Media & Guardian, 2022)

> *This recommendation details how to approach and entrench open government in a way that embodies the Principles for Digital Development, Be Data Driven and Use Open Standards, Open Data, Open Source, and Open Innovation and supports SDG 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), 5 (Achieve gender equality and empower all women and girls), and 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels).*

9. ENCOURAGE A MULTI-STAKEHOLDER APPROACH TO INTERNET GOVERNANCE IN SUPPORT OF INCREASED TRANSPARENCY AND SECURITY

The international development community can promote internet growth by promoting multi-stakeholderism in internet governance for DNS, IXP, and secure data flows.

Areas of support for Tanzania can include internet governance to promote multi-stakeholder models in which private sector and civil society voices actively participate in shaping an open, free, and secure internet.Key government partners to engage in this effort include MICIT, TCRA, and the ICT Commission. It will also be important to engage non-government actors such as TISPA and its ISP members as well as ISOC Tz and the Tanzania IGF initiative.

RELEVANT RESOURCES:

- Promoting American approaches to ICT Policy and Regulation (PROICT) (USAID)
- Global Commission on Internet Governance: One Internet (Center for International Governance Innovation, 2016)
- Internet Governance: why the Multistakeholder approach works (Internet Society, 2016)

> *This recommendation details how to approach and entrench multi-stakeholderism in internet governance in a way that embodies the Principle for Digital Development, Be Collaborative, and supports SDG 9.C (Significantly increase access to ICT and strive to provide universal and affordable access to internet in LDCs by 2020), 16.8 (Broaden and strengthen the participation of developing countries in the institutions of global governance), and 17.8 (Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology).*

10. SUPPORT THE ENABLING ENVIRONMENT FOR DIGITAL FINANCIAL SERVICES BY STRENGTHENING REGULATORY CAPACITY FOR OVERSIGHT

A. Enable capacity-building for regulators and policymakers around emerging technologies. Digital financial service offerings are expanding in Tanzania and non-bank entities are at the forefront of providing innovative solutions. Use cases such as insurtech, government payments, and merchant services are of particular interest to consumers. The BoT predicts increased activity in merchant services including through Near Field Communication (NFC) and other forms of digital payments.[344] However, policy and regulatory frameworks around innovative technology-driven solutions do not exist and the BoT requires support to balance creating an enabling environment for innovation with minimizing potential risks. Regulators often struggle to keep pace

344 Government entity. Interview with DECA Team, June 2022.

with the speed of innovation.[345] The BoT highlighted financial system-wide risks associated with financial service providers that grow rapidly and serve riskier clients and market segments without consumer and investor protection frameworks in place.[346] Many regulators are compelled to prohibit such services until adequate regulatory frameworks are established.[347]

The international development community can consider initiating partnerships or seeking specific training to provide technical assistance to the BoT to conduct a needs assessment aimed at identifying critical knowledge gaps around emerging and existing technologies.

After which, international development actors could consider supporting the BoT by facilitating partnerships with accredited local, regional, and global institutions offering training on policy and regulatory best practices for emerging technologies in the financial sector. The objective is to keep pace and benchmark on emerging and existing industry developments including cryptocurrencies, central bank digital currencies, taxation models, data-driven decision-making, and fiscal aspects of merchant services, among others.[348] To ensure sustainability, the selected courses or tailored curriculum could be delivered in modules and offered to BoT staff when direct application to tasks is determined. This is to ensure relevance of training content and higher potential for transference of knowledge.

B. Support improved implementation of tax measures that impact the digital economy. Taxation has been a sensitive topic in Tanzania's financial sector, with increases in taxation on transactions and levies. Although the GoT announced cost-cutting measures to recover revenue deficits following the tax cuts, the BoT recommended a specialized, systematic, and sustainable approach toward tax management for the digital economy. International development actors can provide the following support:

- Provide technical assistance through fiscal and tax expertise seconded to the MoFP and liaising with the BoT to improve tax implementation. These experts would provide advisory services regarding avenues for revenue generation that do not overburden consumers, hinder uptake of DFS, or support double taxation. The experts could support research to produce regional or global benchmarking and best practice identification that would help the BoT identify and learn from markets with successful tax regimes.
- Convene key players from the financial sector in open dialogue on matters related to ecosystem growth and development. Nonbank FSPs indicated that they were not consulted prior to implementation of tax measures that significantly impact their bottom line. Actors in the international development community can play a key role as a neutral convener and lead discussion between the GoT and relevant public and private sector players on policy changes that impact the sector.

C. Support the BoT to increase data-driven decision-making. Support the build-out of a more robust SupTech platform. The BoT has mostly relied on manually collected transaction data from FSPs. This data often has inaccuracies and limited analytical value. BoT is in the proof of concept stage of an in-house regulatory and supervisory platform that is integrated with FSPs to collect and disseminate real time financial transaction data. The platform aims to improve the quality of data collection and dissemination. Provide support to the BoT by:

- Funding completion of the platform and implementation of a pilot phase;

345 Ehrentraud, J., Ocampo, D., Garsoni, L. and Piccolo, M., 2022. FSI Insights on policy implementation No 23 Policy responses to FinTech a cross-country overview. Accessed September 28, 2022. Online. Bis.org. <https://www.bis.org/fsi/publ/insights23.pdf>]

346 Government entity. Interview with DECA Team, June 2022.

347 Pascual, A. and Natalucci, F., 2022. Fast-Moving FinTech Poses Challenge for Regulators. Accessed September 28, 2022. Online. IMF. Available at: <https://www.imf.org/en/Blogs/Articles/2022/04/13/blog041322-sm2022-gfsr-ch3>

348 Government entity. Interview with DECA Team, June 2022.

- Facilitating training of relevant regulatory specialists on data analytics to enable improved data collection, analysis, and dissemination of deeper data analysis;
- Facilitating training for PSPs on new data reporting processes and advocate for open APIs access to the data portal;
- Establishing benchmarking opportunities with regulators and development agencies supporting similar initiatives such as the larger EAC harmonization of financial data or the Nepal Rastra Bank financial inclusion portal, which was supported by UNCDF;[349] and
- Supporting periodic impact evaluations of the SupTech platform to assess impact and identify areas for improvement.

RELEVANT RESOURCES

- Fast-Moving FinTech Poses Challenge for Regulators (IMF, 2022)
- Digital Inclusion and Mobile Sector Taxation in Tanzania (GSMA, 2015)
- Data as a critical factor for central banks (IFC, 2017)

> *This recommendation aligns with the Principles for Digital Development, Understand the Existing Ecosystem and Be Data Driven, and with SDG 17.18 (By 2020, enhance capacity building support to developing countries, including for LDCs and SIDS, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts).*

11. BOOST THE DIGITAL TALENT POOL BY CREATING DIGITAL TELECENTERS AND COMMUNITY ICT LABS, ESPECIALLY IN PERI-URBAN AND RURAL AREAS

There is a notable gap between the demand and supply of digital talent in Tanzania, as well as a mismatch between the needs of industry and the skills of ICT graduates. Facilities for developing basic to advanced digital skills including universities, colleges, and tech hubs are available but mostly located in urban areas. A study conducted by the Dublin Institute of Technology on the skill needs of Tanzania's ICT sector identified a supply gap in Tanzania's digital talent pool that resulted in skilled jobs being outsourced to other countries, contributing to higher unemployment rate among Tanzanians. [350]

The goal is to embed ICT skill development in the national curriculum, and to supplement it with other learning and practice avenues so ICT can be an enabler for other industries such as agriculture, agri-processing, health, banking, and education.[351] The international development community can consider establishing digital telecenters[352] in peri-urban and rural areas, providing opportunities for learning and practicing digital skills thus matching theory and practice.[353]

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349 Emap.nrb.org.np. 2022. EMapping System: Nepal Rastra Bank. Accessed September 27, 2022. Online. Available at: <https://emap.nrb.org.np/>

350 Lillis, Deirdre, Fredrick Mtenzi, Diana Mauricaite, Said Jafari, and Peter Manifold. "Skills Needs of the ICT Sector in Tanzania." ARROW@TU Dublin, May 2014. https://arrow.tudublin.ie/scschcomrep/7/.

351 "ICT in Tanzania - Ictexport.govmu.org." ICTexport. Accessed September 30, 2022. http://ictexport.govmu.org/English/Documents/Market%20Intelligence/Africa_IO/Tanzania/ICT%20in%20Tanzania%20-%20recent.pdf.

352 Digital Telecenters are public places where citizens can gain access to information technologies and other digital communication resources.

353 Lillis, Deirdre, Fredrick Mtenzi, Diana Mauricaite, Said Jafari, and Peter Manifold, "Skills Needs of the ICT Sector in Tanzania." ARROW@TU Dublin, May 2014. https://arrow.tudublin.ie/scschcomrep/7/.

The following actions can be considered:

A. Partner with key stakeholders to initiate a plan for piloting nationwide telecenters. Work with community organizations and relevant government entities to coordinate the setup of two or three pilot centers strategically located in accessible geographies and equipped with hardware such as computers and radio stations. The centers would operate as community based not-for-profit telecenters in strategic locations identified through a scoping mission. The majority of the telecenters would be located in rural areas, so access to reliable and affordable internet would pose a challenge. This can be mitigated by entering into direct partnerships with ISPs and seeking specialized services and subsidized rates (See also recommendation 5 above)

B. Develop a Training of Trainer (ToT) model for local community members to lead digital skills training. Partner with relevant government entities and registered local community organizations to develop a ToT model for identifying and training community leaders to deliver digital skills training. This is an opportunity to engage youth or teachers who have already been exposed to digital technologies. Services and training offered would be tailored to specific community ICT needs and could include: basic and intermediate ICT skills training; online and radio information services on trade, health, education, civic education and culture; guidance for gaining access to e-government services; internet navigation; and digital financial services.

RELEVANT RESOURCES

- About Rwanda Telecenter Networks
- The Nyamata Telecentre and the Rwanda Telecentre Network (RTN), Rwanda ILO chapter 5 (ILO, 2014)

> *This recommendation can be conducted in the spirit of the Principles for Digital Development, Design With the User and Build for Sustainability, and SDG 9.9.c (Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries).*

12. INCREASE THE EFFICIENCY OF THE TECH STARTUP ECOSYSTEM THROUGH STRENGTHENING THE CAPABILITY OF TSA TO ENHANCE COORDINATION

In order to increase market acceleration, incubation and workforce development activities to advance digital literacy and skill sets across the startup ecosystem, the international development community can support the Tanzania Startup Association (TSA) in playing an intermediation role in the tech startup ecosystem. Support could include:

- Match funding to innovators;
- Build coordination and specialization capabilities for accelerators, incubators, and hubs in partnership with the Buni Innovation Hub to limit duplication of effort and ensure holistic but differentiated support for startups; and
- Partner with TSA to develop regional and international exchange and learning programs. This could include targeted preparation support for global opportunities such as Africa's Baobab Network and the global Y Combinator Awards.

RELEVANT RESOURCES

- Hubs vs. Incubators: What Are the Pain Points for Impact and Efficiency? (University of Oxford, 2015)
- Promoting sustainable entrepreneurship through business incubators, accelerators and innovation Hubs (ILO, 2021)

This recommendation is in alignment with the Principle for Digital Development, Be Collaborative, and SDG 9.b (Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities).

13. ADVANCE DIGITAL TRADE AND E-COMMERCE THROUGH TECHNICAL ASSISTANCE FOR POLICY DEVELOPMENT AND CAPACITY-BUILDING

Although overall growth is slow, there are opportunities for e-commerce to support growth of the digital economy. There are regulatory gaps and an e-commerce or digital trade strategy is not in place. African countries such as Egypt, Uganda, and Cameroon have developed and implemented e-commerce strategies to advance trade priorities and leverage existing opportunities.[354]

Tanzania does not have a coordinating body for e-commerce. Social commerce (business sales through social media channels such as Facebook, WhatsApp and Instagram) is prevalent. Social commerce tends to encourage offline fulfillment, which hinders trust in e-commerce and opportunities to collect key transaction data are missed. Data on e-commerce is minimally collected and market trends are not tracked. This limits data-driven policy and strategic decision-making. The international development community can support e-commerce in Tanzania by:

A. Collaborate with the Ministry of Industry, Trade, and Investment, the Chamber of Commerce, development partners, and the private sector to finalize and support implementation of the digital trade and e-commerce strategy. Modalities of the collaboration can include funding, convening, and technical assistance.

- Setup a coordinating body for digital trade and e-commerce and convene stakeholders for open collaboration and discussions on key issues impacting digital trade and e-commerce.
- Collaborate with the Ministry of Industry, Trade and Investment to assess the digital readiness of businesses in Tanzania to participate in the AfCFTA, which is slowly picking up momentum. This could be done through a survey targeting MSMEs that are trying to grow their markets across the continent. Once a situational analysis of MSMEs is complete, consider extending support toward addressing some of the identified gaps, and kick-starting trade on a pilot basis once opportunities for trade are opened up.

RELEVANT RESOURCES

- UNCTAD E-Commerce strategies
- Expediting the start of trade under the AfCFTA (Trade Law Center, 2022)
- Digital Trade in Trade Agreements: Lessons for the AfCFTA (Trade Law Center, 2022)

SDG 17.12 can be actualized through the AfCFTA: Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access.

354 "E-Commerce Strategies." UNCTAD. Accessed September 30, 2022. https://unctad.org/topic/ecommerce-and-digital-economy/ecommerce-strategies.

Appendices

A. DEFINITIONS

Definitions from USAID DECA Toolkit unless otherwise mentioned.

Affordability: Whether a person can afford the cost of data relative to their income, measured as gigabytes (GBs) of data per percentage of monthly income. The Alliance for Affordable Internet (A4AI) uses a "1 for 2" measure for affordable internet—affordable internet is where 1GB of mobile broadband data is priced at 2 percent or less of average monthly income.

Agent/Branchless banking: The delivery of banking services outside conventional bank branches, usually through a network of agents equipped with point of sale devices or mobile phones. Agents can take many forms including individuals at small shops, petrol stations, and supermarkets. Financial services provided by agents can include cash-in and cash-out points, credit, loans, insurance, bill payment, and person-to-person transfers.

Artificial Intelligence (AI): The science and technology of machines that perform activities normally thought to require human intelligence. One subset of AI is Machine Learning (ML), a technique in which computers "learn" to recognize patterns in existing data, creating systems that can be more flexible, responsive, and adaptable than previously possible. Some AI systems use computers to automatically make decisions, while others create recommendations for human decision-makers.

Blockchain: An example of a distributed ledger technology (DLT), which is a type of shared, peer-to-peer computer database that enables all network participants to agree on a set of facts or events without needing to rely on a single, centralized, or fully trusted intermediary party. Blockchains are the most common form of DLT, and require data on the "chain" to be structured in linked, sequential "blocks."

Censorship: The suppression of free speech by governments or private institutions based on the assumption that said speech is objectionable or offensive. In addition to hard forms of censorship (handed down officially through laws and regulations), soft forms of censorship exist (applied through financial and/or reputational pressure).

Civil Society Organization (CSO): Organizations including formal non-government organizations (NGOs) as well as formal and informal membership associations (labor unions, business and professional associations, farmers' organizations and cooperatives, and women's groups). CSOs articulate and represent the interests of their members, engage in analysis and advocacy, and conduct oversight of government actions and policies.

Cyber Hygiene: The practices and steps that users of computers and other devices take to maintain system health and improve online security. These practices are often part of a routine to ensure the safety of identity and other sensitive details that could be stolen or corrupted.

Cybersecurity: The prevention of damage to, protection of, and restoration of computers, electronic communications systems, electronic communications services, wire communication, and electronic communication,

including information contained therein, to ensure its availability, integrity, authentication, confidentiality, and non-repudiation.

Data Governance: Policies, strategies, frameworks, and practices that governments implement to regulate data collection, management, use, and sharing in the public and private sectors. This broad topic can include data privacy practices, data sovereignty, data stewardship roles and authorities, cross-border data flows, regulations on AI, and data infrastructure (e.g., open data portals and interoperability layers).

Data Privacy: The right of an individual or group to maintain control over and confidentiality of information about themselves. Data privacy can be at risk both from unintentional sharing and from undue or illegal gathering and use of data about that individual or group.

Data Protection: The practice of ensuring the protection of data from unauthorized access, use, disclosure, disruption, modification, or destruction, to provide confidentiality, integrity, and availability.

Digital Divide: The distinction between those who have access to the internet and can make use of digital communications services, and those who find themselves excluded from these services. Often, one can point to multiple and overlapping digital divides, which stem from inequities in access, literacy, cost, or the relevance of services. Factors such as high cost and limited infrastructure often exacerbate digital divides.

Digital Economy: The use of digital and internet infrastructure by individuals, businesses, and government to interact with each other, engage in economic activity, and access both digital and non-digital goods and services. As the ecosystem supporting it matures, the digital economy might grow to encompass all sectors of the economy—a transformation driven by the rise of new services and entrants, as well as backward linkages with the traditional, pre-digital economy. A diverse array of technologies and platforms facilitate activity in the digital economy; however, much activity relies in some measure on the internet, mobile phones, digital data, and digital payments.

Digital Ecosystem: The stakeholders, systems, and enabling environment that together empower people and communities to use digital technology in order to gain access to services, engage with each other, or pursue economic opportunities. Although certain aspects of the digital ecosystem have country-wide reach, other features differ across geographies or communities. USAID's framework for understanding the digital ecosystem is structured around three pillars: Digital Infrastructure and Adoption; Digital Society, Rights, and Governance; and Digital Economy.

Digital Financial Inclusion: The use of digital technology to reach financially excluded and underserved populations with a range of formal financial services that are suited to their needs and are responsibly delivered to customers and sustainable for providers.

Digital Financial Services (DFS)/FinTech: Financial services enabled by or delivered through digital technology (e.g., mobile phones, cards, the internet). DFS (e.g., payments, credit, insurance, savings, advisory) can be offered by a range of providers, from banks to a host of non-bank financial institutions, such as microfinance institutions, digital credit providers, payment providers, technology vendors, and electronic money issuers.

Digital Government: The use of digital technologies, as an integrated part of government modernization strategies, to create public value. This includes how the government manages internal information technology (IT) processes and systems, delivers citizen- and business-facing e-services, and engages with the public through digital channels. Digital government is often used interchangeably with terms like "e-governance" and "e-government."

Digital Identity: A set of attributes that uniquely describes an individual or entity. Digital identification (ID) systems often require registering individuals into a computerized database and providing certain credentials associated with each individual (e.g., birth certificates, identifying numbers, cards, digital certificates) as proof of identity. Digital ID systems sometimes use biometrics (fingerprints, iris scans, etc.) to identify individuals, but many advanced systems do not. Government actors can set up these systems to create foundational, national ID programs, or donors or NGOs for functional purposes to identify beneficiaries, e.g., for humanitarian assistance and service-delivery.

Digital Literacy: The ability to access, manage, understand, integrate, communicate, evaluate, and create information safely and appropriately through digital devices and networked technologies for participation in economic, social, and political life. This may include competencies that are variously referred to as computer literacy, ICT literacy, information literacy, and media literacy.

Digital Payments: Payments initiated or received by electronic means. For an end-user, these payments might be made through a text message, mobile application, website, or merchant-level point-of-sale device, such as a dongle or QR code. A financial institution—e.g., bank, switch, MFI, or payment service provider—might facilitate these payments to or from a range of instruments. Instruments might include: prepaid wallets (i.e., electronic money accounts), cards, transaction or bank accounts, and other instruments that serve as stores of value and permit payments.

Digital Repression: The use of digital tools and technology to suppress internet freedoms and includes five techniques—surveillance, censorship, social manipulation and harassment, internet shutdowns, and targeted persecution of online users. This term can include offline actions taken to penalize online speech (e.g., arrests, physical violence), as well as online actions that seek to suppress freedoms in online and offline spaces.

Digital Rights: The fundamental rights and freedoms that individuals can exercise online,[355] as well as a respect for privacy and ownership of data.[356]

Digital Trade: The delivery of products and services over the internet by firms in any industry sector, and of associated products such as smartphones and Internet-connected sensors.

Disinformation: False information that is deliberately created or disseminated with the express purpose to cause harm. Producers of disinformation typically have political, financial, psychological, or social motivations.

E-commerce: The sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing orders.

Financial Access Point: Locations where individuals can carry out banking or transaction activities such as cash withdrawals, deposits, or balance checks. These include, for example, ATMs, bank branches, and banking agents.

355 International Covenant on Civil and Political Rights. Article 19. United Nations. https://www.ohchr.org/EN/ProfessionalInterest/Pages/CCPR.aspx

356 International Covenant on Civil and Political Rights. Article 17. United Nations. https://www.ohchr.org/EN/ProfessionalInterest/Pages/CCPR.aspx

Emerging Technologies: Technologies for which ethical, policy, and regulatory frameworks are struggling to keep pace with the rate of technological progress. They often lack rigorous testing in the real world, so their implications on people and societies remain less well-understood. These include artificial intelligence (AI), the internet of things (IoT), blockchain, drones, and 3D printing, among others. As these technologies become more affordable and widespread, they may have a significant impact on digital ecosystems and on development more broadly.

Information and Communications Technology (ICT): Diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players and storage devices) and telephony (fixed or mobile, satellite, video-conferencing, etc.).

Internet Freedom: The online exercise of human rights and fundamental freedoms regardless of frontiers or medium. Where internet freedom is respected, the same rights that people have offline are also protected online.

Internet Service Provider (ISP): An organization that delivers access to end-users using both fixed-line and wireless technologies. Wireless ISPs (especially those in rural areas) often seek to take advantage of low licensing and equipment costs by delivering service using unlicensed spectrum. ISPs range in size and scope from small, local providers to providers with international and even global reach.

Interoperability: The ability of computer systems or software to exchange and make use of information from other systems. For example, interoperable data systems allow for data sharing and reuse with common formats and definitions, and interoperable payment systems allow digital transfers of money between different financial service providers.

Internet Governance: The development and application by governments, the private sector, and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the internet.

Last-Mile Connectivity: Where the end-users access the internet using devices (mobile phones, laptops, tablets, computers) through local access networks.

Malinformation: The deliberate publication of private information for personal or private interest, as well as the deliberate manipulation of genuine content. Note that these information are based on reality but are used and disseminated to cause harm. An example is a report that reveals a person's sexual orientation without public interest justification.

Media Literacy: The ability to access, analyze, evaluate, create, and participate with messages in a variety of forms—from print to video to the internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression needed for citizens of a democracy.

Misinformation: Information that is false, but not intended to cause harm. For example, individuals who do not know a piece of information is false may spread it on social media in an attempt to be helpful. Note that disinformation is a type of misinformation—disinformation refers to misinformation that is spread with malicious intent.

Mobile Money: A technology that enables people to receive, store, and spend money using a mobile phone. Can also be referred to as a mobile wallet or e-money.

Mobile Network Operator (MNO): An entity that provides voice and data services primarily via wireless terrestrial networks. MNOs typically use licensed spectrum bands, which, due to the fact that they are not shared, tend to deliver a higher quality, more reliable (and more cost-intensive) service.

Open Government Data: A philosophy—and increasingly a set of policies—that promotes transparency, accountability and value creation by making government data available to all.

Radio Spectrum: Refers to the range of frequencies of electromagnetic radiation that are used to deliver radio transmissions. A critical function of telecommunications sector regulatory authorities is to designate specific frequency ranges (or bands) for different purposes, including telecommunications (but also for applications such as radio astronomy or other industrial uses). Some bands (e.g., WiFi) are unlicensed, meaning that anyone can use them without seeking explicit prior permission.[357] Licensed spectrum requires users (e.g., commercial cellular networks or FM radio broadcasters) to secure a regulator's approval prior to use. Licenses are typically assigned through spectrum auctions, which seek to establish the economic value of spectrum - which is a finite natural resource.

Transparency: An environment where governments and public officials engage in the clear disclosure of rules, plans, processes and actions in a form that is readily accessible to all. Transparency promotes accountability by providing the public with information about what the government is doing.

TV White Space: The unused spectrum between TV stations that can be capitalized upon for increased connectivity. This block of spectrum is considered ripe for innovation and experimental use, holding rich potential for expanding broadband capacity and improving access for many users, and for developing technologies that can expand this type of spectrum access to other frequencies and services to greatly increase our ability to use spectrum.

Universal Service Funds (USF): A mechanism designed to promote network infrastructure development in areas that commercial access providers deem uneconomical. Essentially established as subsidy programs, USFs are resourced through contributions drawn from the revenues of telecommunications operators. USF funds are often applied to help de-risk otherwise complement network investments in underserved (or unserved) areas. In many cases, USFs target projects that serve schools, hospitals, and other anchor institutions where demand for services can be aggregated.

Virtual Currency: No globally accepted definition exists, but a virtual currency can be considered a digital representation of value intended to be used as a medium of exchange, unit of account, or store of value. It is not issued by a government and not treated as legal tender. As an umbrella term, virtual currency can include fully decentralized cryptocurrencies like Bitcoin as well as alternatives that are issued, stored, transacted, or redeemed in a centralized fashion. Virtual currencies are distinguished from proposed government-issued digital forms of cash, typically referred to as central bank-issued digital currencies, or CBDCs.

357 While permissions are not required for unlicensed spectrum use, users are typically limited to technical parameters such as transmission power or antenna specifications.

B. METHODOLOGY

The Tanzania DECA included three components:

A. **USAID/Tanzania engagement:** USAID/Tanzania designated a Mission DECA point of contact (POC) from the USAID/Tanzania program office. The Mission DECA POC helped identify stakeholders; reviewed relevant documents during planning, interviews, and the analysis and report-writing stages; and attended selected interviews during the interview phase.

The Mission DECA POC also helped organize the in-country Inbrief and Outbrief presentations and Post-Interview Recommendations Workshop with USAID/Tanzania, as well as individual meetings with all USAID/Tanzania technical offices. These presentations were important to socialize the DECA purpose and preliminary findings across USAID/Tanzania.

This engagement was important not only for ensuring an appropriate mix of interviewees but also for building the Research Team's understanding of USAID/Tanzania's priorities.

B. **Desk research:** The desk research used a standardized template organized around three pillars (digital infrastructure and adoptions; digital society, rights, and governance; digital economy). The desk research included three components: 1) review of USAID/Tanzania CDCS, funding allocations, and digitally relevant programming; 2) quantitative analysis of open-source data and indices to produce regional comparisons (e.g., GSMA, World Economic Forum, International Telecommunication Union); and 3) internet research guided by high-level questions about the state of Tanzania's digital ecosystem under each pillar.

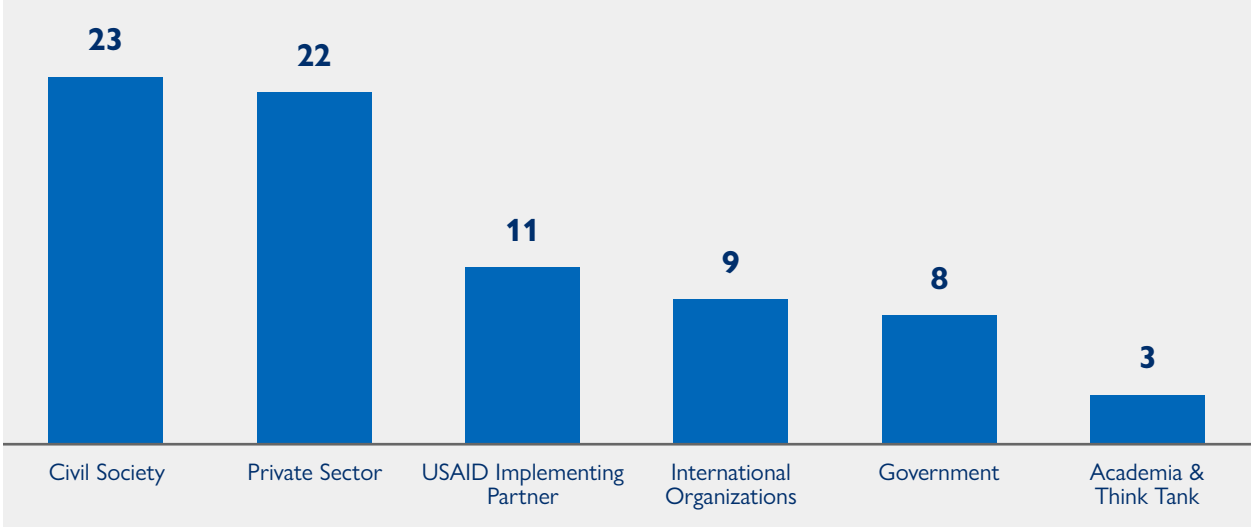
The Research Team shared the desk research with the Mission DECA Team before interviews were conducted and used it to inform the interview guide questionnaires.

C. **Interviews:** The Research Team collaborated with USAID/Tanzania to compile a list of target stakeholders across civil society, academia, international organizations, the private and public sectors, and within USAID/Tanzania. The Research Team and USAID/Tanzania networks secured initial interviews. Additional interviewees were added throughout the research process through referrals from completed interviews.

The Research Team traveled to Tanzania for two weeks to conduct 44 in-person interviews. While the majority of the interviews were conducted in Dar es Salaam, the team traveled to Dodoma for five interviews and to Kondoa for a site visit. Following the two weeks of in-person interviews, for eight weeks, the Research Team conducted virtual interviews to fill gaps, reaching a total of 76 interviews. During the interview phase, the Research Team conducted anywhere from four to eight interviews per day. Most interviews were attended by at least two team members, with a lead interviewer and a notetaker. To best triangulate findings and to test different interview styles, team members rotated with whom they paired on interviews. Each interviewee was asked a general set of questions, which were developed before the interview phase, tailored to be targeted to interviewees and based on learnings from previous interviews.

To ensure a diverse mix of interviewees, the Research Team evaluated the list of scheduled interviews and conducted additional outreach in an attempt to fill identified gaps. The graph below and Appendix C show the 76 interviews by sector (informed by 25 female interviewees, and 71 male interviewees).

FIGURE 25: DECA interviewees, by type



Analysis

The Research Team conducted analysis throughout the interview phase, initiating deeper analysis after the two weeks of in-person interviews. Every day during the two weeks of in-person interviews, the team conducted daily debriefs. During the virtual interview period, the team conducted weekly debriefs. These meetings not only ensured that all team members were briefed on each interview but also facilitated the triangulation of emerging themes that could then be tested in subsequent interviews. Midway through the interviews, the team identified primary themes based on these initial findings. Upon completing the interview phase, the team convened to revisit these themes, confirmed their validity against interview notes, and organized the findings around the three pillars outlined in this report (digital infrastructure and adoption; digital society, rights, and governance; and digital economy). To ensure rigorous analysis, the Research Team used the qualitative analysis software, Dedoose, to identify and triangulate key findings around each DECA topic.

Limitations

Research Team members were limited to an extent by their technical expertise. The DECA is a broad assessment and it can be challenging to find researchers with sufficient breadth and depth of expertise. This may introduce some bias—weighting the specializations of team members more heavily than areas.

Many interviewees were selected through USAID/Tanzania and Research Team networks, which may have excluded stakeholders who are less comfortable engaging with U.S. government representatives.

Given connectivity issues and the location of most experts, interviews were for the most part limited to urban centers.

Research team

The Research Team was composed of digital development generalists and specialists. Team members who were technical experts attended most interviews that were relevant to their expertise.

C. INTERVIEWEE LIST

ACADEMIA & THINK TANK	
1	REPOA
2	AI4D
3	Tanzania Institute for Education (TIE)
CIVIL SOCIETY	
4	Internet Society (ISOC)
5	Freedom House
6	Tanzania Human Rights Defenders Coalition (THRDC)
7	Tusaidiane Disabilities Resources and Charity Organization (TDRCT)
8	Digital Agenda for Tanzania Initiative
9	Rlabs
10	Dr. Mboni Kibelloh
11	Media Convergency
12	Carol Ndosi
13	Lilian Nalwoga
14	Media Journalist
15	Jamii Forums
16	Jamii Forums (2)
17	Kondoa Community Network
18	Tanzania Community Network Alliance
19	Haki Elimu
20	ISACA Tanzania
21	ARTICLE 19
22	Tanzania Internet Service Providers Association (TISPA)
23	CIVICUS
24	CIVICUS (2)
25	Mwananchi

26	Twaweza
GOVERNMENT	
27	Tanzania Communications Regulatory Authority (TCRA)
28	President's Office - Regional Administration and Local Government (PO-RALG)
29	Ministry of ICT
30	Ministry of ICT (2)
31	Bank of Tanzania (BoT)
32	National Council for Technical and Vocational Education and Training (NACTEVET)
33	e-Government Agency (eGA)
34	e-Government Agency Zanzibar (eGAZ)
DONORS, INTERNATIONAL NGOS, INTERNATIONAL DEVELOPMENT ORGANIZATIONS	
35	United Nations Capital Development Fund (UNCDF)
36	Funguo, UNCDF
37	United Nations Development Programme (UNDP)
38	EU - Digital Program
39	World Bank - Digital Program
40	Foreign Commonwealth and Development Office (FCDO) - Digital Program
41	Digital Opportunity Trust
42	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
43	AGRA
PRIVATE SECTOR	
44	Agritech
45	Raddy Fiber Manufacturing
46	CRDB Bank
47	AzamPay
48	Twigalpha
49	Sahara Ventures

50	Warioba Ventures
51	Buni Innovation Hub
52	Empower
53	Tigo
54	WeKonnect
55	Finca microfinance
56	Vodacom
57	Tunzaa FinTech
58	Horizon Digital
59	Tanzania AI Lab
60	FastHub
61	Tanzania Startup Association
62	Smartlab
63	CUBE Zanzibar
64	World Mobile
65	Tanzania Telecommunications Corporation (TTCL)
USAID IMPLEMENTING PARTNER & OTHER DEVELOPMENT SECTOR PARTNERS	
66	Tuhifadhi Mazingira Project - RTI International
67	Touch Foundation
68	Cambridge Education Education Programme for Results (EP4R)
69	PATH
70	Jifunze Uelewe - RTI International
71	Public Sector Systems Strengthening Plus (PS3+) - ABT Associates
72	FHI 360
73	Farmer-to-farmer - IESC
74	Tanzania Horticultural Association (TAHA)
75	Data. Fi - Palladium
76	FishWise

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