



THE UNITED REPUBLIC OF TANZANIA
**MINISTRY OF COMMUNICATION AND
INFORMATION TECHNOLOGY**

**THE NATIONAL ICT
INFRASTRUCTURE
MASTERPLAN
2026 – 2036**

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Building a Meaningful **Connected Tanzania**
for Inclusive Digital Transformation



CONNECTIVITY
FOR ALL



RELIABLE
INFRASTRUCTURE



SECURE AND
RESILIENT



INNOVATION
AND GROWTH



INCLUSIVE
DIGITAL SOCIETY



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**THE NATIONAL ICT
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(NIIM)
2026 - 2036**

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Foreword by the Minister

I am delighted to present the National ICT Infrastructure Master plan 2026-2036;

In the era of the Fourth Industrial Revolution, digital connectivity and technologies have emerged as the primary engine driving economic growth, transforming communication, business operations, innovation, and service delivery across all sectors. Digital connectivity is no longer optional; it is an essential enabler of innovation, productivity, inclusion, and sustainable socio-economic development.

Since the early 2000s, Tanzania has made substantial strides in enhancing national connectivity. As of December 2025, the National ICT Broadband Backbone (NICTBB) connects all regions, 86% of districts, and seven out of eight neighbouring countries. Mobile broadband coverage has reached 94% of the population, while mobile internet subscriptions (encompassing 2G, 3G, 4G, and 5G) have achieved 85.3% penetration.

Despite these achievements, challenges persist: approximately 44% of citizens remain without meaningful internet connectivity, rural-urban digital divides endure, and cybersecurity threats are escalating.



The National ICT Infrastructure Master Plan (NIIM) 2026–2036 addresses these gaps through six strategic focus areas:

1. Universal Access and Digital Inclusion—To bridge the digital divide and ensure equitable connectivity.
2. High-Speed Broadband Infrastructure—For smart services, e-government, and sectoral transformation.
3. Innovation and Emerging Technologies—To increase the ICT sector's contribution to the national GDP to 10% by 2036.
4. Cybersecurity and Digital Trust – To build trust and resilience in digital ecosystems.
5. Sustainability and Regional Integration—With emphasis on environmental stewardship and regional leadership.

6. Institutional Strengthening and Governance – To enhance governance and implementation efficiency.

The overarching objective is to achieve universal and meaningful connectivity for all Tanzanians - ensuring safe, affordable, satisfying, productive, and enriching access to online services that foster inclusive and sustainable socio-economic development.

This Master Plan directly supports the Tanzania Digital Economy Strategic Framework 2024–2034, Tanzania Development Vision 2050, African Union (AU) Agenda 2063 (*The African*

we want agenda), and the United Nations Sustainable Development Goals.

The NIIM will be financed through partnerships involving the public sector, private investors, and development partners. It is projected to generate over one million jobs, empower communities, and position Tanzania as a leading regional digital hub.

Let us unite in our commitment to realizing universal, meaningful and affordable connectivity for a prosperous digital Tanzania.

Hon. Angellah Jasmine Mbelwa Kairuki
Minister of Communication and Information Technology

Preface by the Permanent Secretary



The National ICT Infrastructure Master Plan 2026–2036 (NIIM) operationalises the national priorities articulated in the Tanzania Development Vision 2050, National ICT Policy 2016 (and its ongoing review), the Tanzania Digital Economy Strategic Framework 2024–2034 and the National Broadband Strategy 2021–2026.

The NIIM builds upon a robust foundation of over 15,000 kilometres of fibre-optic infrastructure established through the National ICT Broadband Backbone (NICTBB), developed in close partnership with the private sector. As of December 2025, Tanzania has achieved 94 percent population coverage for 4G mobile broadband services, complemented by approximately 30 percent population coverage for 5G, seven Internet Exchange Points, three Tier III public data centres, and four international submarine cables.

Despite these significant achievements, key challenges remain, including broadband internet user penetration at approximately 56%, fixed broadband penetration below 1%, backbone utilisation at around 10%, and IPv6 adoption at 10.7%.

The NIIM is designed to deliver a range of strategic outcomes including 100 percent 4G mobile broadband population coverage by 2030, 100 percent mobile broadband internet user penetration by 2036, 60 percent Fixed broadband penetration, a national backbone capacity of 32 terabits per second, establishment of minimum additional four public Tier III/IV data centre, deployment of minimum additional four submarine cable, deployment of sovereign cloud and a national high-performance computing facility with a capacity of 20 petaflops. These ambitious targets will be supported by a total investment requirement of TZS 15,277 billion over the ten-year period.

I call upon all stakeholders - government institutions, the private sector, development partners, civil society organisations, and the public - to actively collaborate in realising a connected, inclusive, and future-ready digital Tanzania.

Mohammed Khamis Abdulla
Permanent Secretary

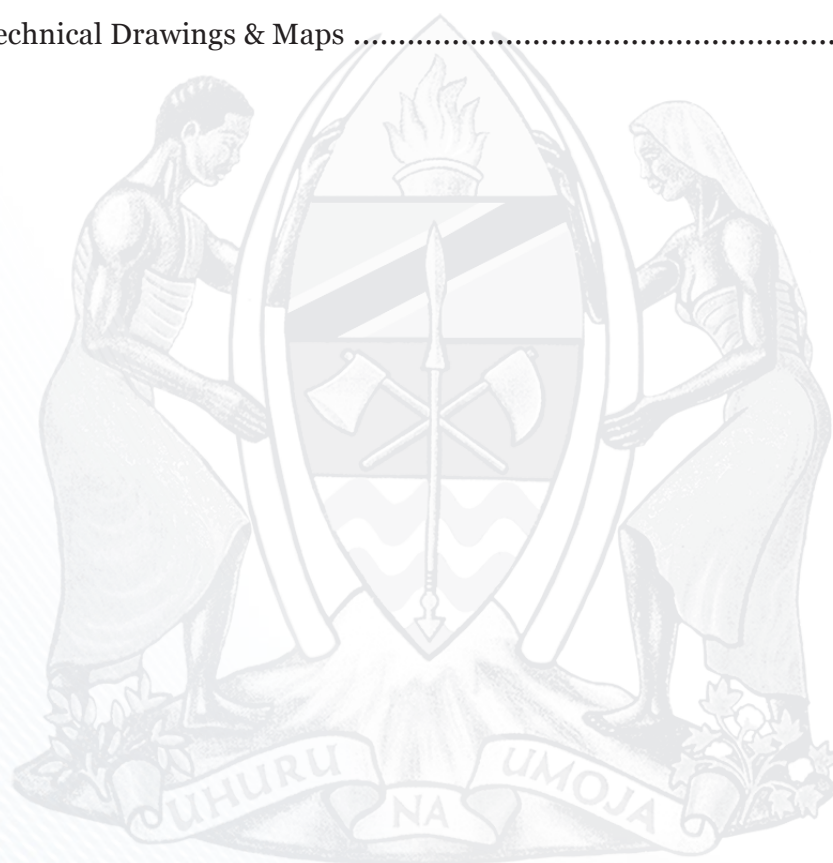
Ministry of Communication and Information Technology

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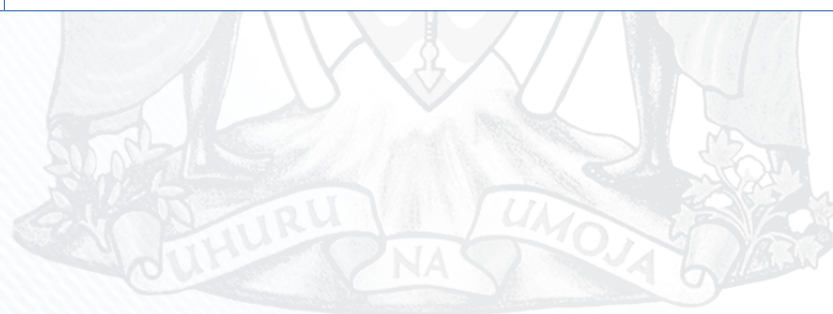
Term	Definition
2G/3G/4G/5G/6G	Second/Third/Fourth/Fifth/Sixth Generation mobile network technologies
AfDB	African Development Bank
AFRINIC	African Network Information Centre
AI	Artificial Intelligence
ATU	African Telecommunication Union
AU	African Union
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
CDN	Content Delivery Network
CERTs	Tanzania Computer Emergency Response Teams
CGNAT	Carrier-Grade Network Address Translation
COMESA	Common Market for Eastern and Southern Africa
COSTECH	Commission for Science and Technology
CSIRT	Computer Security Incident Response Team
CSOC	Cyber Security Operations Centre
DARE1	Djibouti Africa Regional Express 1
DBFO	Design-Build-Finance-Operate
DC	Data Centre
DFI	Development Finance Institution
DIT	Dar es Salaam Institute of Technology
DRC	Democratic Republic of Congo
DSM	Digital Single Market
EAC	East African Community
EACO	East African Communications Organisation
EACOP	East African Crude Oil Pipeline
EASSy	Eastern Africa Submarine Cable System
eGA	e-Government Authority
eGaz	e-Government Authority, Zanzibar
eGSOC	e-Government Security Operations Centre
EIA	Environmental Impact Assessment

Term	Definition
EPOCA	Electronic and Postal Communications Act
ERB	Engineers Registration Board
EU	European Union
FinCERT	Financial Computer Emergency Response Team
FTTH	Fibre to the Home
FTTx	Fibre to the Premises
FWA	Fixed Wireless Access
FYDP	Five-Year Development Plan
G2B	Government-to-Business
G2C	Government-to-Citizen
G2G	Government-to-Government
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GEO	Geostationary Earth Orbit
GIS	Geographic Information System
GovESB	Government Enterprise Service Bus
GovNet	Government Network
GPU	Graphics Processing Unit
HLIs	Higher Learning Institutions
HPC	High-Performance Computing
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communication Technology
ICTC	ICT Commission
IFI	International Financial Institution
IoT	Internet of Things
IPv6	Internet Protocol Version 6
ISP	Internet Service Provider
ITU	International Telecommunication Union
IXP	Internet Exchange Point
KPI	Key Performance Indicator
KM	Kilometres
LEO	Low-Earth Orbit
LGA	Local Government Authority
Mbps	Megabit per second

Term	Definition
M&E	Monitoring & Evaluation
MCIT	Ministry of Communication and Information Technology
MDA	Ministries, Departments and Agencies
MFAEAC	Ministry of Foreign Affairs and East African Cooperation
MLHSD	Ministry of Lands, Housing and Human Settlements Development
MNO	Mobile Network Operator
MoCDGWSG	Ministry of Community Development, Gender, Women and Special Groups
MoE	Ministry of Energy
MoEST	Ministry of Education, Science and Technology
MoF	Ministry of Finance
MORAN	Multi Operator Radio Access Network
MoT	Ministry of Transport
MoW	Ministry of Works
MoWA	Ministry of Water
MW	Megawatt
NACTVET	National Council for Technical and Vocational Education and Training
NAT	Network Address Translation
NBSC	National Broadband Steering Committee
NDIR	National Digital Infrastructure Registry
NEMC	National Environment Management Council
NEPAD	New Partnership for Africa's Development
NICTBB	National ICT Broadband Backbone
NIDA	National Identification Authority
NIDC	National Internet Data Centre
NIIM	National ICT Infrastructure Masterplan 2026-2036
NM-AIST	Nelson Mandela African Institute of Science and Technology
NPKI	National Public Key Infrastructure
NRTS	National Reference Time Source
OECD	Organisation for Economic Co-operation and Development
ONA	One Network Area
OPEX	Operational Expenditure
PB	Petabyte
PDPA	Personal Data Protection Act (2022)
PDPC	Personal Data Protection Commission

Term	Definition
PEACE	Pakistan & East Africa Connecting Europe
PFLOPS	Peta Floating-Point Operations Per Second
PMO	Prime Minister's Office
POP	Point of Presence
POPIA	Protection of Personal Information Act
PMO-RALG	Prime Minister's Office , Regional Administration and Local Government
PPP	Public-Private Partnership
PPRA	Public Procurement Regulatory Authority
PWD	People With Disability
QoS	Quality of Service
R&D	Research and Development
RAG	Red-Amber-Green
RAN	Radio Access Network
REA	Rural Energy Agency
RISDP	Regional Indicative Strategic Development Plan
RoW	Right of Way
SADC	Southern African Development Community
SDGs	Sustainable Development Goals
SIEM	Security Information and Event Management
SLA	Service Level Agreement
SOC	Security Operations Centre
SPVs	Special Purpose Vehicles
STIX	Structured Threat Information Expression
TANESCO	Tanzania Electricity Supply Company
TANROADS	Tanzania National Roads Agency
TARURA	Tanzania Rural and Urban Roads Agency
TAXII	Trusted Automated Exchange of Intelligence Information
Tbps	Terabit per second
TBS	Tanzania Bureau of Standards
TCRA	Tanzania Communications Regulatory Authority
TCRA-CCC	TCRA Consumer Consultative Council
TEAMS	East African Marine Systems
TIP	Threat Intelligence Platform
TISEZA	Tanzania Investment and Special Economic Zone Authority

Term	Definition
TIX	Tanzania Internet Exchange
TISPA	Tanzania Internet Service Providers Association
TMA	Tanzania Meteorological Authority
TNBS	Tanzania National Broadband Strategy
TPDC	Tanzania Petroleum Development Corporation
TRA	Tanzania Revenue Authority
TRC	Tanzania Railways Corporation
TTCL	Tanzania Telecommunications Corporation
TVET	Technical and Vocational Education and Training
TZ-CERT	Tanzania Computer Emergency Response Team
TZNOG	Tanzania Network Operators Group
UCSAF	Universal Communications Service Access Fund
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States Dollar
WCAG	Web Content Accessibility Guidelines
ZANROADS	Zanzibar Road Agency
ZECO	Zanzibar Electricity Corporation
ZICTIA	Zanzibar Communication Cooperation



EXECUTIVE SUMMARY

The National ICT Infrastructure Masterplan 2026 - 2036 (NIIM) provides a comprehensive blueprint for Tanzania's next decade of digital transformation. It operationalizes the ambitions of the Tanzania Vision 2050, National ICT Policy 2016 and its ongoing review, Tanzania Digital Economy Strategic Framework (2024 - 2034), the National Broadband Strategy (2021 - 2026), and the National Development Plans, aligning national efforts to deliver secure, sustainable, and inclusive ICT infrastructure that accelerates economic growth, innovation, entrepreneurship and regional integration.

The vision of the NIIM is “*A Digitally Empowered, Meaningfully and Universally Connected Tanzania*”. The vision is set to make Tanzania, a resilient regional digital infrastructure hub delivering universal and meaningful connectivity for everyone in Tanzania and across the region. Its mission is “*To build and sustain a robust, secure, and inclusive national digital ecosystem that delivers affordable, high-quality, and uninterrupted meaningful connectivity to every citizen and business; accelerates the development of resilient, future-proof digital infrastructure; and positions Tanzania as a preferred digital and innovation hub in the region*”.

The NIIM is built on six strategic pillars that deliver measurable outcomes by 2036:

1. Universal Access and Digital Inclusion: Achieve 100% mobile broadband population coverage with 100% of smart devices penetration rate, establish 5,590 public Wi-Fi hotspots and operationalize 1,000 community ICT hubs to ensure equitable access to digital services across the nation.

2. High-Speed Broadband Infrastructure: Expand the National ICT Broadband Backbone (NICTBB) to 32 Tbps; ensure full FTTx and hyperscalers readiness; modernize and scale IXP infrastructure by adding two new exchange points; densify and optimize local CDN peering; and facilitate nationwide rollout of 5G and subsequently 6G or higher-generation technologies.

3. Innovation and Emerging Technologies: Develop a national high-performance computing (HPC) facility with 20 petaflops of capacity, establish a sovereign national cloud, promote at least four new Tier III/IV data centre establishments and launch six innovation and technology parks to drive research and digital entrepreneurship.

4. Cybersecurity and Digital Trust: Strengthen national resilience through a Cybersecurity Operations Centre (CSOC), National Public Key Infrastructure (NPKI), National Root Time Server (NRTS), and ensure 100% security coverage for all government networks (GovNet).

5. Sustainability and Regional Integration: Ensure that at least 50% of ICT infrastructure is powered by renewable energy sources, expand international connectivity through four additional submarine cable landings, establishing at least 2 Intercontinental terrestrial optic fiber broadband backbone connecting Tanzania to Western, Northern and Southern part of the continent, and integrate operation and maintenance (O&M) for 99.5% uptime with below 8-hour mean time to repair (MTTR).

6. Institutional Strengthening and Governance: Implement a One-Stop e-Permitting System to streamline rights-of-way, operationalize the National Digital Infrastructure Registry (NDIR), and revitalize the National Broadband Steering Committee (NBSC) for coordinated governance.

The NIIM will be implemented in three sequential phases to ensure orderly development, institutional learning, and long-term sustainability:

- **Phase I (2026 - 2028): Foundations.** This phase, priorities the enhancement of core broadband and digital infrastructure, including the expansion of the NICTBB, deployment of rural broadband connectivity

projects, expansion of fixed broadband (FTTx), Submarine cable and Data centre development, and operationalisation of foundational regulatory and institutional mechanisms such as the NDIR, the one-stop digital permitting portal, and strengthened inter-ministerial coordination through NBSC. It also initiates key projects under Universal Access, Digital Governance, and Institutional Readiness focus areas. The estimated investment for this phase is **TZS 3,964 billion**.

- **Phase II (2029 - 2031): Expansion.** In addition to the project initiated in phase 1, this phase focuses on the large-scale deployment of 5G and FTTx networks, the establishment and operationalization of the national HPC facility, the nationwide transition to IPv6, submarine cable resilience, device penetration and the expansion of digital innovation hubs across the country. It has an estimated cost of **TZS 4,392 billion**.

- **Phase III (2032 - 2036): Consolidation.** The final phase focuses on the nationwide FTTx rollout, early-stage 6G deployment, integration of smart city platforms across major urban centres, and sustained O&M technician training and deployment. An investment of **TZS 6,921 billion** supports it.

In total, the NIIM mobilizes **TZS 15,277 billion (≈ USD 6.1 billion) over ten years**. Funding will be drawn from Public-Private Partnerships and Other Private Sector Investment (50%), the Universal Communications Service Access Fund (UCSAF) (10%), Government allocations (20%), and Development Finance Institutions (20%).

By 2036 (Ref. Table 1 and Annex 4), the NIIM aims to achieve full mobile broadband coverage, expand rural broadband access to 100%, and reduce entry-level broadband subscription price from 4.23% (2025) to 2% of gross national income (GNI) per capita (2031). IPv6 adoption

should rise from 10.7% (2025) to 100% by 2031, ensuring future-ready connectivity. The ICT sector's contribution to GDP is projected to grow from 1.5% in 2025 to 10% in 2036, supported by the creation of over one million new digital jobs.

Table 1: Key Performance Indicators (2026 - 2036)

Indicator	Baseline (Dec, 2025)	2031	2036
Mobile Broadband Population Coverage	94%	100%	100%
Mobile Internet Broadband Subscription	56%	90%	100%
Fixed broadband Subscription	< 1%	40%	70%
Smart Device Penetration	41.8%	100%	>100%
Internet Exchange points (IXPs)	7	7	9
Submarine cable landings	4	6	8
Data Affordability (Entry-level broadband subscription price)	~4.23% of monthly GNI per capita	2% of monthly GNI per capita	≤2% of monthly GNI per capita
IPv6 Adoption	10.7%	100%	100%
ICT GDP Contribution	1.5%	5%	10%
Jobs Created	-	500,000	1,000,000+
Renewable-Powered ICT Infrastructure	~10%	25%	50%
Digital Infrastructure Uptime	< 95%	97.50%	99.50%
Mean Time to Repair (MTTR) for all faults including last-mile connectivity	> 72 hours	≤ 12 hours	≤ 8 hours

A robust M&E framework will ensure transparency, accountability, and incorporate evidence-based progress tracking. The system includes an AI-powered dashboard with live GIS integration for real-time analytics, including O&M metrics like uptime and MTTR.

Mid-term evaluation will be conducted in 2031 and a final evaluation in 2036, complemented by annual independent audits by a Civil Society Monitoring Panel to uphold transparency and inclusivity.

Driving Tanzania's Digital Future





Chapter One

Introduction

1.1 Background and Rationale

The United Republic of Tanzania has experienced significant acceleration in its digital transformation in recent years. This progress is driven by substantial national investments in ICT infrastructure, supportive enabling policies, and increasing recognition of digital connectivity as a critical enabler of economic growth and social inclusion. These advancements are fully aligned with the aspirations of Tanzania Development Vision 2050, which envisages a knowledge-based economy underpinned by universal, reliable, and secure access to digital technologies. The NIIM responds to this ambition by providing a comprehensive and coherent framework to guide the next decade of digital infrastructure development in Tanzania.

By December, 2025, Tanzania has already achieved major milestones, including expansion of the 41,000 fiber optic network, with National ICT Broadband Backbone (NICTBB) consisting of over 15,000 km connecting regions, districts and neighbouring countries. Broadband population coverage has reached 94.2 percent for 4G and 30.1 percent for 5G, underscoring steady national progress.

Despite these achievements, persistent challenges remain. Internet user (2G/3G/4G/5G/FTTx) penetration stands at approximately 85% (with internet subscriptions at 58.1 million), yet high-speed broadband adoption remains limited at 56% for mobile broadband users and less than 1 percent for fixed broadband users. Rural-urban access disparities

persist, backbone capacity utilisation is low, local data hosting remains underdeveloped, and cybersecurity vulnerabilities continue to pose risks. These gaps underscore the urgent need for a strategic, forward-looking, and integrated approach to ensure inclusive, sustainable, and resilient digital connectivity for all.

The NIIM builds upon existing accomplishments while systematically addressing these challenges through targeted, data-driven, and future-oriented interventions. Anchored in six strategic pillars which are focus areas, the NIIM establishes a robust foundation for a secure, resilient, and inclusive digital ecosystem capable of supporting transformative technologies, including Artificial Intelligence (AI), Internet of Things (IoT), Cloud Computing, Blockchain, Quantum Communications, 6G, and Smart Cities initiatives.

1.2 Purpose and Scope

The purpose of the NIIM is to provide a unified national framework for coordinating the investment, modernization, and governance of Tanzania ICT infrastructure between 2026 and 2036 equivalent to Government financial year 2026/27 to 2035/36. It translates digital strategies into an investment-ready roadmap that aligns infrastructure planning with service delivery and national transformation goals.

The NIIM seeks to guide coordinated public-private investment in broadband, data centres, cloud platforms, and cybersecurity systems; establish institutional and regulatory mechanisms to promote interoperability,

infrastructure sharing, and digital trust; and provide implementation and monitoring frameworks ensuring accountability and measurable impact.

Its scope extends beyond network infrastructure to the broader digital ecosystem supporting digital transformation. This includes core and access networks (terrestrial, aerial, and subsea optic fiber), digital facilities (data centres, cloud, and edge platforms), and enabling components such as reliable power supply, spectrum management, and green ICT. It also covers cross-cutting enablers like digital identity, data governance, cybersecurity operations, and smart city readiness systems.

The NIIM also defines the institutional, regulatory, and financing arrangements necessary for effective implementation and harmonization across public and private actors. By integrating planning, investment, and governance, the NIIM ensures that digital infrastructure expansion directly supports inclusive growth, service delivery, and competitiveness.

The Ministry responsible for communications in the United Republic of Tanzania is mandated to provide overarching policy guidance and direction for the development of communications infrastructure throughout the United Republic of Tanzania. Therefore, in close collaboration with the Ministry of Communication, Information Technology and Innovation (MCITI) of the Revolutionary Government of Zanzibar, the Ministry of Communication and Information Technology

(MCIT) will drive a unified approach to this development.

1.3 Importance of the National ICT Infrastructure Masterplan

In a global economy driven by connectivity, the NIIM is essential for bridging Tanzania's digital divide, enhancing resilience, and ensuring digital sovereignty. It is not only a technical roadmap but a strategic investment framework for inclusive prosperity and sustainable development.

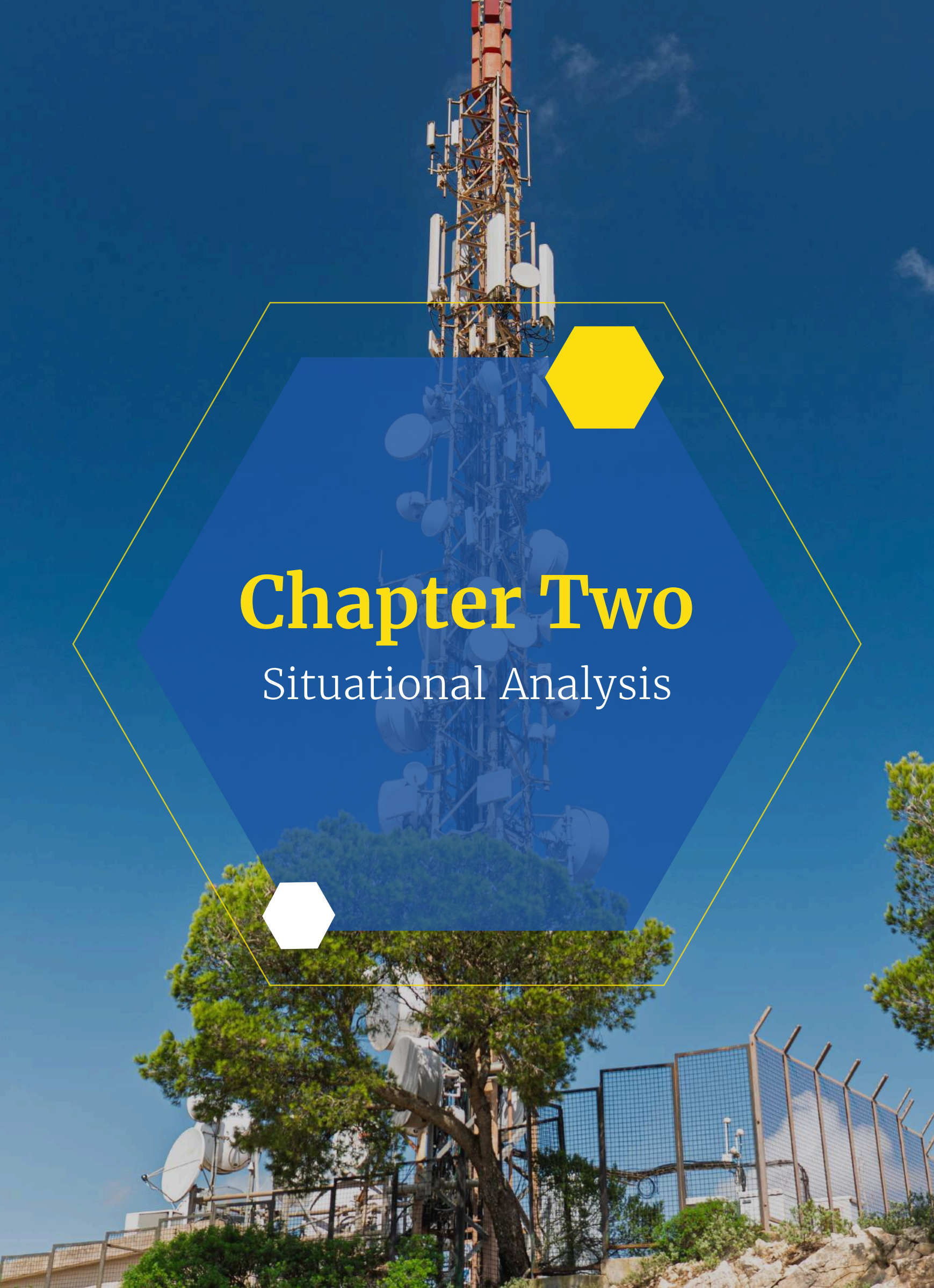
The NIIM strengthens national capabilities by ensuring universal broadband access, establishing redundant terrestrial and subsea connections to diversify international capacity routes, and promoting cross-border connectivity with all neighbouring countries. It enhances digital government, e-payments, research, and cybersecurity capabilities through the adoption of AI, Cloud Computing, and HPC, while promoting green ICT practices and energy - efficient infrastructure design.

The Plan also addresses long-standing barriers such as financing gaps, rights-of-way constraints, and power reliability issues, ensuring that investments are efficient, future proof, and regionally aligned. By positioning Tanzania as a digital gateway for East and Southern Africa, the NIIM complements broader frameworks including the Tanzania Vision 2050, Tanzania National ICT Policy 2016 and its ongoing review, Tanzania National Broadband Strategy (2021 - 2026), Digital Economy Strategic Framework (2024 - 2034), the United Nations (UN) Sustainable

Development Goals (SDGs), Global Digital Compact, the African Union (AU) Agenda 2063, the SADC Digital Transformation Strategy (2021-2030), and the EAC Digital Transformation Frameworks.

Ultimately, the NIIM represents a national commitment to a connected, innovative, and resilient digital future, one that empowers citizens, strengthens institutions, and positions Tanzania as a regional leader in digital transformation.





Chapter Two

Situational Analysis

2.1 Overview

Tanzania's digital transformation journey has been characterized by significant progress in expanding ICT infrastructure, formulating policies, and developing institutions. However, despite these advances, structural disparities persist in network reach, capacity utilization, service affordability, and institutional coordination. The Situational Analysis provides a comprehensive assessment of the country's current ICT infrastructure ecosystem, highlighting the strengths, gaps, and interventions that inform the design and implementation of the NIIM.

This analysis draws from national statistics, stakeholder consultations, and sectoral reports to establish a factual baseline for strategic planning. It examines the performance of existing infrastructure, including broadband networks, data centres, digital infrastructure platforms, spectrum management, and power systems, alongside the institutional and regulatory mechanisms governing their development. By understanding the current landscape, this chapter defines the starting point and evidence base for NIIM interventions, ensuring that recommendations in subsequent chapters are pragmatic, achievable forward-looking, and responsive to national and regional connectivity goals.

2.2 Policies and Laws Governing ICT Infrastructure

Tanzania's Information and Communication Technology (ICT) infrastructure is governed

by a comprehensive set of laws and policies that provide the foundation for planning, regulation, financing, and safeguarding of the national digital ecosystem. These instruments define how telecommunications networks, data centres, and digital platforms are built, operated, and maintained. Together, they create an enabling environment that promotes connectivity, innovation, and secure access to digital services.

2.2.1 National ICT Policy

The National ICT Policy 2016 (under review) seeks to strengthen Tanzania's digital foundation by developing reliable, affordable, secure, interoperable, and sustainable digital infrastructure. It broadens the scope of ICT infrastructure to include fixed and wireless broadband networks, fibre-optic systems, Internet Exchange Points (IXPs), data centres, and other digital facilities. The policy emphasizes universal access, open access to backbone infrastructure, and shared investment in both public and private networks. It also promotes local manufacturing of ICT equipment, spectrum sharing, and the expansion of submarine, metro, and last-mile connectivity to improve nationwide coverage. Additionally, it calls for a National Service Bus to enable secure data exchange and integration among public and private systems. Overall, the policy modernizes Tanzania's infrastructure framework by linking connectivity expansion with affordability, access, interoperability, and sustainability goals.

2.2.2 Tanzania Communications Regulatory Authority Act

The Tanzania Communications Regulatory Authority (TCRA) Act 2003, with key amendment in 2010, establishes the Tanzania Communications Regulatory Authority as the sector's regulator. It grants the Authority powers to license operators, manage frequency spectrum, monitor performance, and enforce compliance with laws and regulations. The Act also mandates TCRA to promote fair competition and ensure the efficient use of communications infrastructure. Its role extends to monitoring quality of service, approving new technologies, and facilitating the development of both public and private ICT infrastructures. In practice, this law ensures that all network infrastructure operates under regulatory oversight that protects consumers and maintains national standards.

2.2.3 The Universal Communications Service Access Act

The Universal Communications Service Access Act 2006, with amendments in 2020 - 2022 and its supporting regulations of 2009, provides the legal basis for promoting universal access for ICT services, particularly in underserved and remote areas. It establishes the Universal Communications Access Fund (UCSAF), which mobilizes resources from licensed operators, the government, and development partners to support infrastructure deployment in commercially unviable regions. The Fund is used to finance shared telecommunication towers, rural broadband networks, satellite

connectivity, and public access points. This framework ensures that infrastructure development contributes to digital inclusion by extending connectivity beyond urban centres and reducing the digital divide.

2.2.4 Electronic and Postal Communications Act (EPOCA)

The Electronic and Postal Communications Act (EPOCA) 2010, with key amendments in 2018 and 2023, is the principal legislation regulating the electronic communications and postal sectors in Tanzania. It establishes the legal framework for licensing, spectrum allocation, and the construction and operation of telecommunications infrastructure. The Act empowers authorities to issue technical standards and regulations that ensure quality, interoperability, and safety across communication networks. It also governs infrastructure sharing among operators, spectrum management, and the installation of submarine cables, terrestrial fibre, and wireless systems. Through EPOCA, all telecommunications and broadband infrastructure must comply with defined technical and operational requirements.

2.2.5 The Electronic Transactions Act

The Electronic Transactions Act 2015, amended in 2024, gives legal recognition to electronic records, signatures, and contracts, forming the foundation for digital commerce and e-services in Tanzania. It provides a framework for secure and authenticated electronic interactions, thereby enabling trust

in digital systems. The Act indirectly supports ICT infrastructure by legitimizing the systems, such as servers, authentication platforms, and secure communication channels, that facilitate digital transactions. It also promotes the use of encryption and digital certification, which are essential for secure online infrastructure and e-business operations.

2.2.6 Cybercrime Act 2015

The Cybercrimes Act 2015, amended in 2024, addresses offenses related to unauthorized access, interference, and misuse of computer systems and electronic data. It empowers law enforcement agencies to investigate and prosecute cybercrime while setting obligations for service providers to preserve electronic evidence. This legislation reinforces the security dimension of ICT infrastructure, requiring operators to implement protective measures such as firewalls, monitoring systems, and backup facilities. By promoting resilience and integrity in digital networks, the Act ensures that the country's communication infrastructure remains secure and trustworthy.

2.2.7 The e-Government Act

The e-Government Act 2019 establishes the e-Government Authority (eGA) and sets the legal framework for the development and management of government ICT infrastructure. It mandates the creation of secure, interoperable government networks and data centres to support electronic service delivery. The Act ensures that government ICT systems adhere to national standards for interoperability, information security, and data exchange. It

also provides for shared digital platforms and common infrastructure that promote efficiency and cost-effectiveness in public service delivery. This law is pivotal in guiding the consolidation and modernization of ICT infrastructure within the public sector.

2.2.8 Personal Data Protection Act

The Personal Data Protection Act 2022 establishes comprehensive rules for the collection, processing, storage, and transfer of personal data. It creates the Personal Data Protection Commission (PDPC) and introduces standards for safeguarding privacy and preventing data misuse. This law has direct implications for ICT infrastructure, particularly data centres, data controllers, cloud services, and government information systems. It dictates how data must be managed, where it can be stored, and the security measures required to protect it. The PDPA ensures that strong mechanisms for privacy and data governance accompany the development of ICT infrastructure.

2.2.9 Technical and Environmental Standards (TBS and NEMC Regulations)

The Tanzania Bureau of Standards (TBS), established under the Tanzania Bureau of Standards Act of 1975, and the National Environmental Management Council (NEMC), established under the Environmental Management Act of 2004, develop and enforce standards and guidelines that influence the design, deployment, and operation of ICT

infrastructure. These standards cover areas such as telecommunications tower materials, fibre optic components, power systems, energy efficiency of ICT equipment and facilities, and the management of electronic waste (e-waste). Compliance with these standards ensures that ICT infrastructure meets national safety, quality, environmental protection, and energy efficiency requirements. Furthermore, they promote the adoption of sustainable and green ICT practices, including the integration of renewable energy solutions in network operations, improved energy efficiency in ICT systems, and the environmentally responsible handling, recycling, and disposal of electronic equipment.

2.3 ICT Infrastructure Institutional Ecosystem

Tanzania's ICT infrastructure framework is governed by an integrated institutional framework that aligns policy, regulation, financing, investment promotion, permitting, and

and implementation oversight. The ecosystem depicted in Figure 1, spans government ministries, regulators, telecom operators, industry groups, and cross-sector partners.

It presents a high-level overview of the key actors and their coordinated roles in policy direction, regulatory oversight, financing, and operational coordination.

2.3.1 Policy Leadership and Strategic Coordination

The Ministry responsible for communications in the United Republic of Tanzania is mandated to provide overarching policy guidance and direction for the development of communications infrastructure throughout the United Republic of Tanzania. At the apex, the Ministry of Communication and Information Technology (MCIT) in close collaboration with the Ministry responsible for Communications of the Revolutionary Government of Zanzibar, provides national policy leadership,

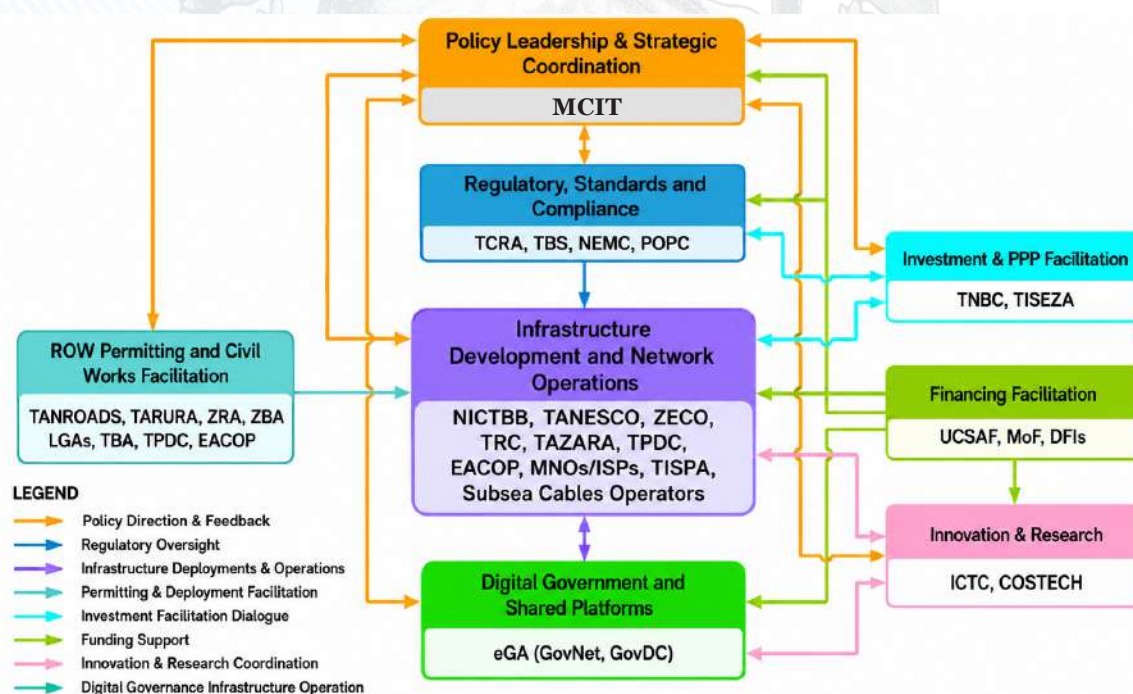


Figure 1: Tanzania's ICT Infrastructure Institutional Ecosystem

strategic coordination, and oversight for ICT infrastructure planning and development.

MCIT ensures sectoral alignment with national development plans and guides the formulation of regulatory and investment priorities for broadband and digital infrastructure.

2.3.2 Regulatory, Standards, and Compliance Institutions

Regulatory and standardization functions are exercised by agencies such as the TCRA, the TBS, and the NEMC, which ensure compliance with technical, quality, and environmental standards. The Personal Data Protection Commission (PDPC) complements these institutions by enforcing data governance and privacy across ICT systems.

2.3.3 Infrastructure Development and Network Operations

Infrastructure development and operations are led by entities responsible for broadband and network rollout, including Tanzania Telecommunications Corporation (TTCL)/NICTBB, Zanzibar Communication Corporation (ZICTIA), mobile network operators (MNOs), internet service providers (ISPs), and the Tanzania Internet Service Providers Association (TISPA), which manages Internet Exchange Points (IXPs). Tanzania Electricity Supply Company (TANESCO) and Zanzibar Electricity Corporation (ZECO) complement these operators as both power utility and fibre-network infrastructure provider, ensuring reliable energy supply and backbone connectivity for national ICT Broadband Backbone systems.

Additionally, railway operators such as the Tanzania Railways Corporation (TRC) and the Tanzania-Zambia Railway Authority (TAZARA), along with oil and gas pipeline operators including the Tanzania Petroleum Development Corporation (TPDC) and the East African Crude Oil Pipeline project (EACOP), provide strategic rights-of-way (RoWs) that are increasingly utilized for the deployment of national and regional fibre broadband backbone routes. These entities also develop and manage their own fibre-optic infrastructure, which is also used by National ICT Broadband Backbone (NICTBB) to strengthen national connectivity, redundancy, and cross-border interconnection.

2.3.4 Civil Works, Right of Way and Building Permit Facilitation

The Right of Way (RoW) permits are handled by Roads Agencies (Tanzania National Roads Agency [TANROADS] and Tanzania Rural and Urban Roads Agency [TARURA] in Tanzania Mainland; and Zanzibar Roads Agency [ZANROADS] for Zanzibar), while the Civil Works and Building permits are handled by the Ministry responsible for Regional Administration and Local Government (RALG) through Local Government Authorities (LGAs), and the Building Agencies (TBA and ZBA). These institutions issue rights-of-way and building permits, allocate public land or rooftops for network facilities, and support coordinated infrastructure deployment. RALG also mobilizes local participation and ensures that ICT infrastructure development aligns with local government plans and rural connectivity priorities.

2.3.5 Digital Government and Shared Infrastructure

The e-Government Authority (eGA) is mandated to coordinate and oversee e-government initiatives across the public sector. It develops and enforces standards for digital government systems and infrastructure, ensuring interoperability among ministries, departments, and local governments. The Authority also manages the Government Network (GovNet), Government Data Centres (DCs), and shared e-service platforms, which provide the backbone for secure government communication and digital service delivery.

2.3.6 Financing and Investment Facilitation

Tanzania's ICT infrastructure financing and investment ecosystem combines mechanisms for capital mobilization and investment promotion. It brings together public and private financing instruments, policy incentives, and partnership frameworks to expand broadband and digital infrastructure nationwide.

a) Investment & Public-Private Partnership Promotion

Investment and Public-Private Partnership (PPP) coordination is led by the Tanzania Investment and Special Economic Zone Authority (TISEZA) and the Tanzania National Business Council (TNBC). TISEZA facilitates ICT investments through streamlined procedures, fiscal incentives, and PPP frameworks that attract private capital into broadband, data centres, and related infrastructure. TNBC provides a high-level public-private

dialogue platform that guides investment priorities, policy reforms, and collaboration to accelerate digital infrastructure growth and competitiveness.

b) Investment Financing Facilitation

Financing for ICT infrastructure is coordinated through the Ministry responsible for Finance, Universal Communications Service Access Fund (UCSAF), and Development and International Financial Institutions (DFIs/IFIs). UCSAF supports broadband rollout in underserved areas through targeted co-funding and performance-based subsidies. MoF mobilizes and allocates public funds for strategic ICT projects, including national backbone and e-government systems. DFIs/IFIs complement domestic financing through concessional loans, grants, and blended financing to sustain large-scale ICT infrastructure deployment.

2.3.7 Innovation and Research

The ICT Commission (ICTC) and the Tanzania Commission for Science and Technology (COSTECH) jointly promote innovation, research, and digital capacity development to support the sustainable growth and expansion of Tanzania's ICT infrastructure. ICTC focuses on nurturing ICT entrepreneurship, developing local technological solutions, and advancing digital skills to strengthen national innovation capacity. COSTECH complements these efforts by coordinating ICT-related research, facilitating technology transfer, and supporting partnerships between academia, industry, and government to foster an innovation-driven digital ecosystem.

2.3.8 Overall Framework

Collectively, this institutional framework ensures policy coherence, regulatory efficiency, investment coordination, and sustainable infrastructure growth, providing a robust governance foundation for the expansion of Tanzania's secure, inclusive, and future-ready digital infrastructure.

2.4 Current ICT Infrastructure Landscape

2.4.1 International Connectivity

Dar es Salaam serves as Tanzania's primary gateway for international internet connectivity, hosting landings for several submarine cables that carry the bulk of global bandwidth.

Key systems include SEACOM (operational since 2009), Eastern Africa Submarine Cable System (EASSy), operational since 2010, and the 2Africa consortium cable with 45,000 km launched in August 2023 linking Tanzania to Europe, the Middle East, and Asia while significantly boosting capacity, reducing latency, and lowering costs compared to satellite alternatives. Figure 2 is the indicative map of the submarine cables landing in Tanzania.

For instance, SEACOM's introduction slashed wholesale bandwidth prices and improved speeds nationwide, EASSy added east coast resilience, and 2Africa contributes 180 Tbps of design capacity for future scalability.

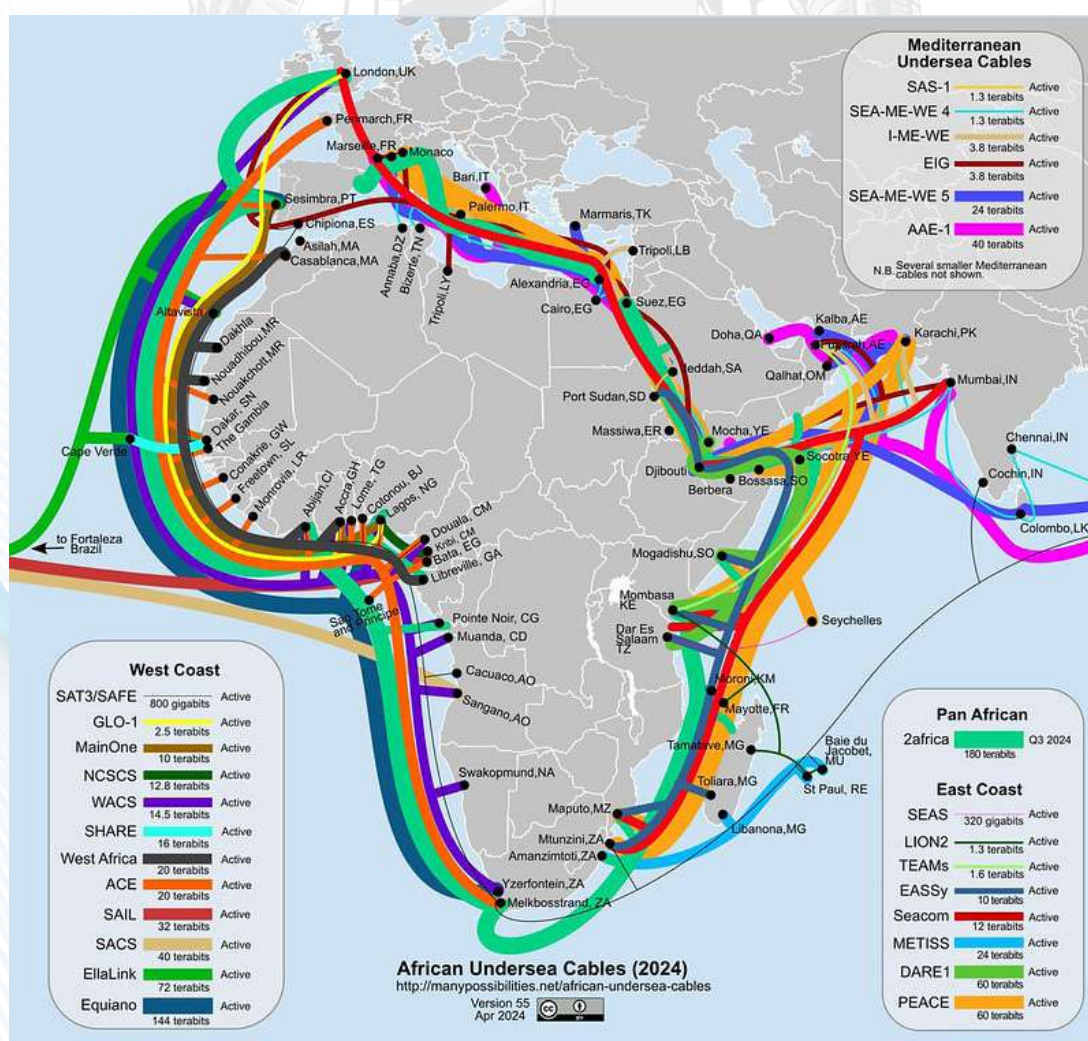


Figure 2: Submarine Cables with Landing in Tanzania

Source: Wikimedia Commons, "African Undersea Cables in 2023 (version 54)"

Complementing these, the smaller Seychelles East Africa System (SEAS), a 1,917 km regional link operational since 2012 connecting Mahé to Dar es Salaam, underscores Tanzania's role as an East African hub, with all cables terminating at carrier-grade stations that interconnect with the domestic NICTBB. All these cables increase redundancy in international connectivity.

Tanzania's international connectivity is set for further enhancement, with the 2Africa cable already driving capacity increases and competition to improve service quality and affordability. Upcoming expected and planned developments include the Kilimanjaro Express Cable (Dar es Salaam-Mauritius), Africa-1 cable, Blue Raman Cable system and Daraja Subsea Cable.

2.4.2 Regional Connectivity

Complementing its undersea cables, Tanzania has invested in a robust terrestrial NICTBB. This fiber-optic network distributes international capacity nationwide and extends to neighbouring countries. Tanzania is directly interconnected with seven neighbours: Kenya, Uganda, Rwanda, Burundi, Zambia, Malawi, and Mozambique via cross-border fiber links, with a new link under construction across Lake Tanganyika from Kigoma to Kalemie in the Democratic Republic of Congo (DRC). This enables landlocked countries to access submarine bandwidth through Tanzania, fostering cross-border data exchange and trade. For example, westward connections reach Rwanda, and Burundi (and soon DRC), northward to Uganda and Kenya, and southward to Zambia, Malawi, and

Mozambique, positioning Dar es Salaam as a regional transit hub.

In July 2025, Tanzania and Kenya launched a 130 km terrestrial fiber link between the Lunga Lunga (Kenya) and Horohoro (Tanzania) borders. Operating at up to 1.6 Tbps initially, this link enhances resiliency by connecting Tanzania to Kenya's eight submarine cables (e.g., TEAMS, PEACE, DARE1, SEACOM/EASSy branches). It allows rerouting during outages at Dar es Salaam landing stations, reducing disruptions from cable cuts. Kenya benefits reciprocally by accessing Tanzanian routes and Southern African cables, supporting broader regional connectivity strategies.

2.4.3 National Backbone Infrastructure

Tanzania's ICT broadband network comprises over 41,000 km of optical fiber, (about 22,000 km on backbone and 19,000 km on access backhaul) interconnecting major regions and cities, enabling access for citizens, public and private institutions. The core fiber backbone (NICTBB) consist of more than 15,000 km, connecting all regions, neighbouring countries and 109 districts, with the remaining 30 districts scheduled for connection by 2026. Figure 3 is a map showing the existing optic fibre network nationwide.

Complementing this, ZICTIA has constructed about 1,500km of ICT backbone fibre connecting all 11 districts in Zanzibar. Moreover, private mobile operator consortia, which includes Vodacom, Airtel and Honora in agreement with the government, have deployed

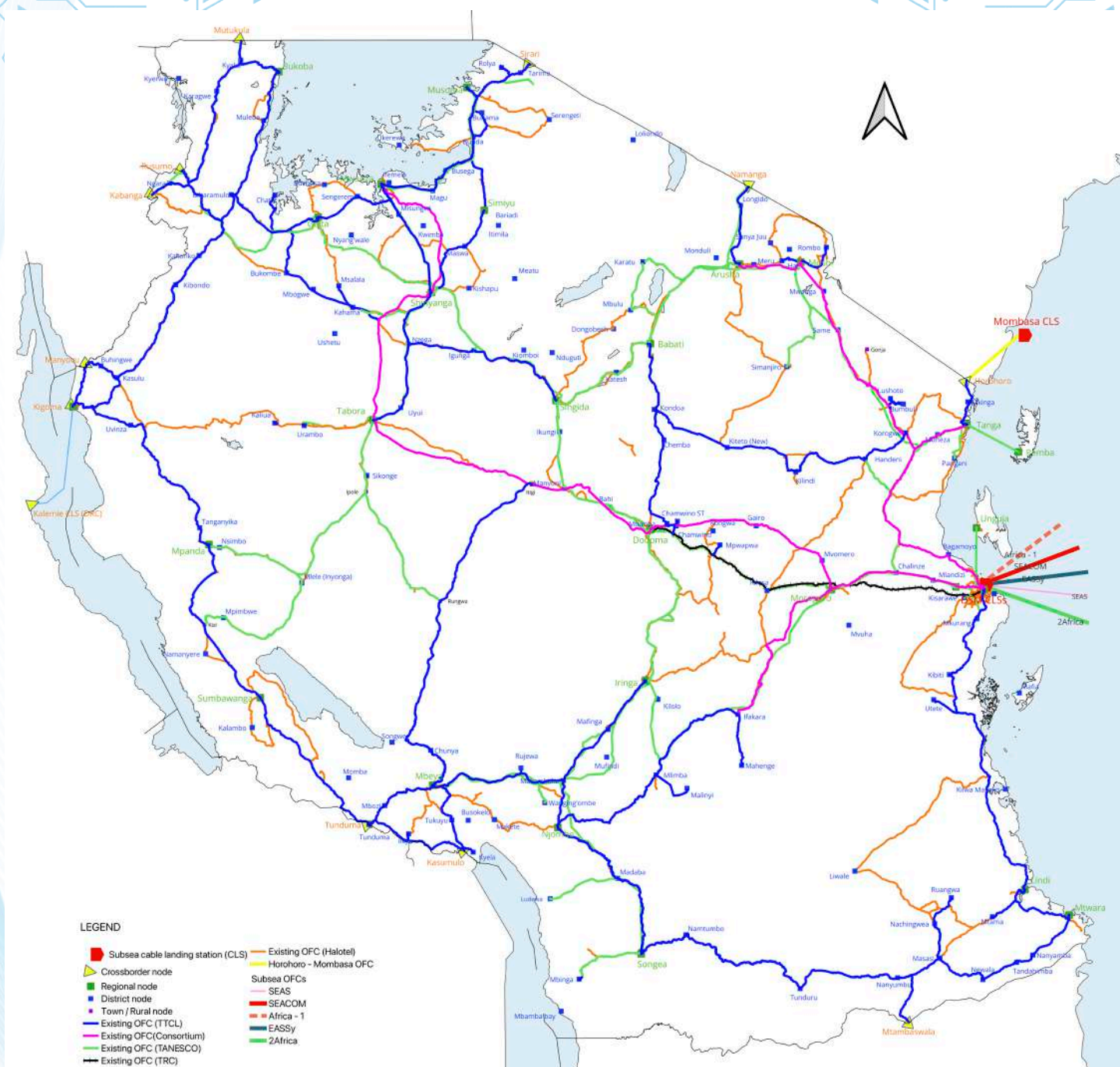


Figure 3: Existing Integrated Optic Fibre Network Map

Source: Ministry of Communication and Information Technology (2025), compiled from TTCL, TANESCO, TRC and private operator data

2,640 km along strategic routes, sharing costs to accelerate rollout, enhance interoperability, and provide extension and redundancy to NICTBB's.

TANESCO contributes approximately 12,000 km of optical fiber, with near future plans to add over 4,000 km more, laid alongside high-voltage power transmission lines, utilizing existing routes for affordable broadband expansion into

remote areas; TANESCO employs this for grid communications and integrating the excess with the NICTBB. Railway infrastructure from TRC includes about 434 km along the Standard Gauge Railway from Dar es Salaam to Dodoma, plus another 1,250 km under construction towards Tabora, Kigoma, Mwanza and Musongati (Burundi), linking into the NICTBB. Viettel Tanzania (Halotel), a key private mobile

operator, has deployed around 19,023 km of fiber primarily to connect mobile towers and regional networks, extending into rural and underserved districts to bolster mobile broadband and internet access. Collectively, these contributions create a robust fiber-optic infrastructure that supports accessible, affordable internet services, bridges urban-rural divides, and lays a strong foundation for Tanzania's future digital expansion.

2.4.4 Mobile Networks Infrastructure

Mobile telephony is the primary mode of connectivity for end-users in Tanzania. As of December 2025, the country had 10,029 telecom towers (with 1,232 in Dar es Salaam alone) hosting approximately 15,216 2G base stations, 13,942 3G sites, 14,393 4G sites, and 1,255 5G sites. This includes 758 planned rural communication towers under the Digital Tanzania Project which had been deployed and activated, providing mobile network access to an additional 8.5 million citizens across 1,974 wards (encompassing over 5,100 villages). As a result of these deployments and UCSAF interventions, the mobile broadband population and geographical coverage have reached 94% and 77%, respectively, meaning that most Tanzanians have been reached by high-speed mobile internet signals. Coverage gaps persist in the most difficult-to-reach regions, while some remote users still rely on 3G or 2G services. Estimated 2,543 towers are still required for universal communication coverage.

2.4.5 Data Centres and Internet Exchange Points

Tanzania's data centre ecosystem is expanding, featuring four (4) Tier III carrier-neutral public facilities primarily in Dar es Salaam, alongside numerous private data centres operated by telecom providers, banks, and ISPs; for instance, one major MNO manages six Tier II/III centres across Dar es Salaam, Dodoma, Arusha, Mwanza, and Mbeya, with other MNOs maintaining certified sites in key cities, totalling about 16 active data centres as of June 2025. These data centres, complemented by seven IXPs in locations such as Dar es Salaam, Arusha, Mwanza, Dodoma, Mbeya, and Zanzibar, enable efficient local interconnection and content caching, achieving 61% availability of the top 1,000 accessed websites via in-country caches to enhance speeds and cut/avoid international transit costs; the primary Tanzania Internet Exchange (TIX) in Dar es Salaam, along with regional IXPs, promote robust domestic peering among networks.

2.4.6 AI & Power Computing Facilities

Tanzania's computing infrastructure is evolving in tandem with its telecom backbone, featuring modern Tier III facilities in Dar es Salaam, such as Wingu Africa and the state-run National Internet Data Centre, which deliver multi-megawatt power capacities, high-availability, colocation, and domestic cloud services optimized for Artificial Intelligence (AI) and analytics workloads. These centres include high-density racks for Graphics Processing

Unit (GPU) servers, interconnected with major operators and the NICTBB, minimizing latency and international bandwidth usage while ensuring data sovereignty for sectors like government, health, and finance.

National HPC capacity is still emerging, with most users depending on enterprise data centres, university GPU workstations such as at Nelson Mandela African Institute of Science and Technology (NM-AIST), Dar es Salaam Institute of Technology (DIT) and Tanzania Meteorological Authority (TMA), and small clusters. Note that larger AI training often relies on foreign clouds, leading to USD costs and cross-border data transfers. To address this, establishing a multi-tenant, in-country GPU/HPC platform linked to IXPs and research networks would facilitate the use of shared accelerators and elastic scheduling for universities, startups, and ministries. Future expansion could involve deploying additional edge computing nodes and regional data centres beyond major cities to localize traffic and enhance nationwide latency reduction.

2.4.7 IPv6 Deployment

Tanzania has recognized IPv6 as strategically important in recent national ICT strategies. The review of 2016 National ICT Policy explicitly notes that the IPv4 -> IPv6 transition is needed *“to enhance efficiency in the management and utilization of scarce ICT resources”*. The Digital Economy Strategic Framework (2024–2034) establishes a clear national objective for IPv6 transition, calling for the development of an IPv4 -> IPv6 migration strategy and targeting

full IPv6 readiness by June 2025. The Tanzania Communications Regulatory Authority (TCRA) has been instrumental in advancing this agenda—providing capacity-building support through initiatives such as TZNOG training programs and commissioning research on IPv6 adoption. Tanzania’s ICT leadership has also committed to aligning national infrastructure and regulatory instruments with IPv6 standards, including harmonization with international best practices. Notably, the National IPv6 Strategy has already been issued, and an IPv6 Council has been established under TCRA, marking a significant step toward structured implementation and coordinated transition across operators, infrastructure providers, and public institutions.

On the ground, IPv6 deployment remains very low. According to AFRINIC, major Tanzanian ISPs have obtained IPv6 address space, which shows many large allocations. Between 2006 and 2025, Tanzania received at least 12 IPv6 “/32” blocks, each containing 2^{32} addresses. According to TCRA 2025 internal report, the adoption rate is 10.7% for service providers. However, actual usage is minimal. A recent Internet Society study found that *“Tanzania has only minimal IPv6 adoption (0.3 - 0.4%)”* of users. The Internet Society’s Pulse index likewise gives Tanzania an IPv6 adoption score of just 1/100 (i.e., essentially negligible). In practice, most ISPs and networks in Tanzania still rely on IPv4 (often using NAT / CGNAT) and have not enabled IPv6 on customer links. For example, at the Uganda Internet Exchange (the nearest IXP), only 10 of 30 connected

networks had IPv6 peering by early 2024 (33%), and most Tanzanian peers remain IPv4-only. Public institutions and enterprises in Tanzania have not widely adopted IPv6 either; there are no reports of major ministries or state networks being on IPv6 today.

2.4.8 Tanzania Technology Stack

The Tanzania Technology Stack is the national framework that guides how digital services are designed, developed, integrated, and delivered across Tanzania. It provides a common foundation for building a secure, interoperable, inclusive, and citizen-centred digital ecosystem that supports the country's journey towards a Digital Society. Built on a Whole-of-Government approach, the Stack brings together government institutions, the private sector, development partners, academia, innovators, and citizens to work towards a shared vision of digital transformation.

By promoting the use of common standards, shared platforms, and reusable digital components, it helps institutions work together more effectively, reduce duplication of efforts, and deliver better services to citizens and businesses. These capabilities can be reused across different sectors, enabling faster innovation, greater interoperability, and more efficient service delivery. The Tanzania Technology Stack is organised into four interconnected layers:

1. Enabling Layer

The Enabling Layer provides the policy, legal, institutional, and governance foundations

needed for successful digital transformation. It includes leadership and governance mechanisms, policy frameworks, guidelines, as well as initiatives for digital skills development, research, and innovation. This layer creates an environment that supports secure, trusted, and sustainable digital growth.

2. Infrastructure Layer

The Infrastructure Layer provides the physical and digital foundations that power Tanzania's digital economy. It includes broadband networks, telecommunications infrastructure, satellite connectivity, data centres, cloud platforms, computing facilities, public internet access points, and cybersecurity systems. This layer ensures reliable connectivity, secure data processing, and scalable digital services across the country, while helping bridge the digital divide between urban and rural communities. It also provides the foundation for emerging technologies such as Artificial Intelligence, Big Data, Cloud Computing, and the Internet of Things (IoT).

3. Digital Public Infrastructure (DPI) Layer

The Digital Public Infrastructure (DPI) Layer comprises the foundational digital platforms that form the backbone of Tanzania's digital ecosystem. It provides trusted and reusable digital platforms that enable citizens, businesses, and government institutions to interact seamlessly and securely. The DPI layer is built around five strategic pillars: Jamii Namba, Jamii Data, Jamii Malipo, Jamii AI and Safeguards for Children. Together, these

pillars provide the trusted digital foundations required to deliver modern services, drive innovation, and expand participation in the digital economy.

4. Application Layer

The Application Layer consists of digital services and sector-specific solutions that directly serve citizens, businesses, and institutions. These applications build upon the capabilities provided by the DPI layer and support service delivery across sectors such as government administration, health, education, agriculture, trade, justice, transport, tourism, social protection, and financial services. These user centered applications prioritise accessibility,

inclusivity, interoperability, and ease of use, ensuring that digital services are available to all segments of society.

The Tanzania Technology Stack is an enabler of the country's vision to build an inclusive, innovative, and digitally empowered society. It supports the implementation of national priorities outlined in the National ICT Infrastructure Masterplan (2026-2036), Tanzania Digital Economy Strategic Framework (2024-2034), National ICT Policy (2016), and the Tanzania Development Vision 2050. Visionary leadership, strong governance, modern digital infrastructure, Digital Public Infrastructure (DPI), digital

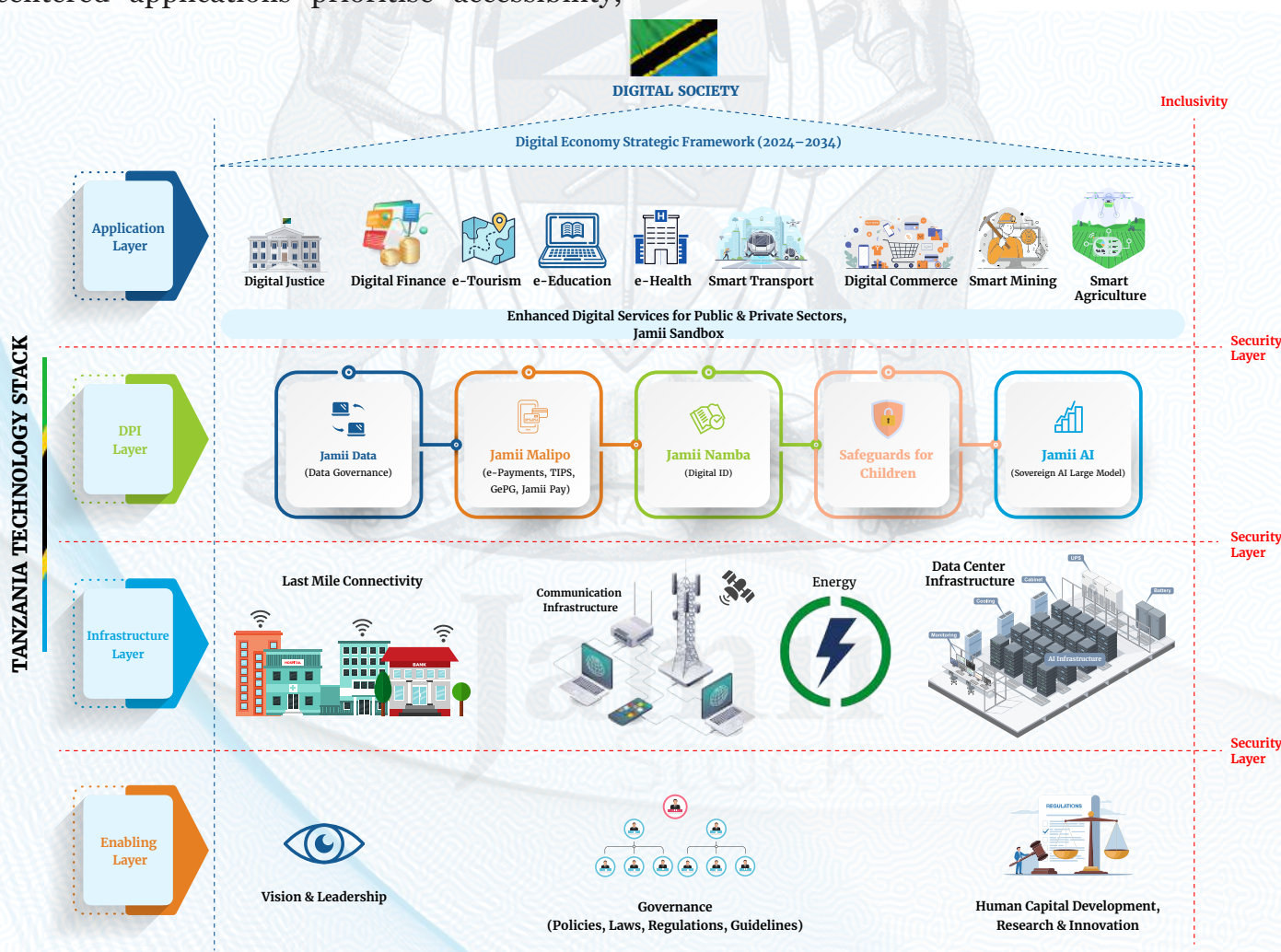


Figure 4: Tanzania Technology Stack

2.5 ICT Infrastructure Sharing Profile

Infrastructure sharing has become a critical lever for reducing costs, accelerating broadband rollout, and improving network efficiency in Tanzania's ICT sector. The sharing framework encompasses passive infrastructure (e.g., towers, ducts, and power systems), active infrastructure (e.g., radio access equipment and spectrum), and backhaul transmission (fiber and microwave links). Tanzania demonstrates moderate progress in infrastructure sharing, driven by commercial agreements among operators and regulatory encouragement to minimize duplication and enhance rural coverage.

2.5.1 Infrastructure Sharing Environment

The TCRA through EPOCA regulations promotes infrastructure sharing to enhance network efficiency and service coverage. TCRA is currently considering strengthened regulatory incentives, including reviewing wholesale prices for the NICTBB, coordinated rights-of-way access, co-location obligations for new sites, and harmonized approval processes under the *'Trench Once'* principle, to deepen both passive and active sharing models. A recent regional review under the East African Communications Organisation (EACO) also recommended harmonizing the sharing of policies to lower investment duplication across member states.

2.5.2 Passive Infrastructure Sharing

Tanzania exhibits a high degree of passive infrastructure sharing, primarily through tower collocation. Major mobile network operators Vodacom, Airtel, and YAS, have divested large portions of their tower assets to independent tower companies such as Helios Towers, TowerCo of Africa and Minara Tanzania. These tower companies provide neutral hosting, allowing multiple operators to install their radio equipment at shared sites. As a result, more than 70% of the country's mobile towers are now operated on a shared or leasable basis, contributing to wider coverage and reduced capital expenditure. Rural deployment programmes supported by the UCSAF also encourage co-location on shared sites to extend coverage cost-effectively.

2.5.3 Active Infrastructure Sharing

Tanzania's active infrastructure sharing is growing, mainly through Radio Access Network (RAN) sharing among leading MNOs. Collaborative RAN agreements between Vodacom, Airtel, YAS and TTCL have allowed joint use of antennas, base stations, and radio access nodes in select areas, improving service reach and lowering operational costs. Spectrum sharing has started, supported by the regulatory environment under the Electronic and Postal Communications (Infrastructure Sharing) Regulations which provides a legal foundation for such arrangements, aligning with global

trends toward multi-operator radio access network (MORAN) and network virtualization.

2.5.4 Fiber and Backhaul Sharing

Tanzania has also made some progress on fiber-sharing arrangements to improve interconnectivity and avoid redundant investments. The NICTBB, operated by TTCL, is nominally an open-access platform offering wholesale capacity to operators and ISPs. Additionally, Airtel Africa and Vodacom Group have recently entered into a strategic agreement to share fiber and tower infrastructure in several countries including Tanzania, reflecting growing confidence in collaborative infrastructure models. This evolution supports cost optimization, resilience, and faster rollout of 4G and 5G backhaul links.

2.6 Gaps and Strategic Interventions

2.6.1 Universal Access and Digital Inclusion-The Digital Divide

2.6.1.1 Key Gaps & Challenges

Although mobile broadband population coverage has reached 94% in December, 2025, an estimated 6% of Tanzanians continue to lack any access, with the unserved areas concentrated in remote, mountainous, and lake/island localities. In additional 20 - 25% live in areas with nominal coverage, relying solely on 2G/3G services. Moreover, the broadband internet user penetration is at 56% nationally and less than 30% in rural areas.

Backhaul bottlenecks are severe: More than 60% of rural towers depend on microwave or satellite links with latency above 150ms, speeds below 10 Mbps, and frequent outages. OPEX is unsustainable with diesel costs of TZS 1.2-1.8 million per tower/month in off-grid sites, while solar-hybrid systems are under-optimized, with battery failure rates exceeding than 30% within 3 years. Moreover, there is need for strengthening coordination between public institutions responsible for infrastructure development such as Road Agencies, Power/Energies Agencies and UCSAF to timely facilitate alignment of access road, tower and power deployments, as less than 15% of rural sites benefit from shared energy infrastructure.

Digital literacy, affordability and device access remain low: Despite the 94% mobile broadband population coverage countrywide, the actual connectivity remains low due to affordability, digital literacy, and device barriers. Over 70% of rural citizens lack basic digital skills, and smartphone ownership is at 42% (the average smart device costs more than TZS 250,000). Women, people with disabilities (PWDs), and the elderly are disproportionately excluded, with an estimated 18% gender gap in internet use. Content accessibility is another major bottleneck, with fewer than 5% of public digital services available in Swahili voice/text-to-speech formats or compliant with the Web Content Accessibility Guidelines (WCAG) 2.1 Level AA, which is widely recognized as the minimum accessibility standard for government websites and digital platforms. As a result, millions, especially in rural areas

and among vulnerable groups, remain offline, limiting their access to essential services and the digital economy. Mobile broadband affordability (entry-level data-only basket) is approximately 4.23% of monthly GNI per capita (based on ITU 2024–2025 data, with trends continuing into 2025) which is above the threshold set by Broadband Commission for Sustainable Development.

2.6.1.2 Strategic Interventions

1. Fixed Broadband Penetration & Last-Mile Acceleration Program: Launch a national fixed broadband rollout initiative combining fiber-to-the-home/business (FTTx) in urban and peri-urban areas with fixed wireless access (FWA) in rural districts. Support the program with subsidized customer premises equipment (CPE) for FWA in rural areas, reduced last-mile RoW fees, sharing infrastructure and open-access requirements to stimulate private-sector investment and rapidly increase fixed broadband penetration.

2. Public Wi-Fi and Community Connectivity: Deploy safe, trusted public Wi-Fi hotspots in public places - *education, health, LGA wards, transport hubs, and market areas*. Connect schools and health facilities (hospitals, health centre and dispensaries) with broadband networks. Establish community ICT hubs (in both rural and urban areas) with shared devices, on-site support staff, and training programs to drive adoption and the generation of local

content.

3. Rural Broadband Expansion:

Expand rural broadband coverage through Mobile networks, fixed wireless access (FWA) and LEO/GEO broadband satellite in remote and hard to reach areas, integrated with the national backhaul network.

4. ICT-Energy Synergy, Renewable Power & Institutional Coordination:

Establish a permanent Joint Broadband Taskforce including REA, ZECO, TANESCO and UCSAF under the National Broadband Steering Committee (NBSC) with binding joint annual plans, clear mandates, quarterly reviews, and a public dashboard. The Taskforce will eliminate failures in ICT-Energy synergy coordination, synchronize fibre & tower rollout plans with electrification programmes, mandate infrastructure sharing, and rapidly deploy shared solar-hybrid power systems for multi-tenant rural sites, thereby cutting diesel use and ICT costs.

5. Backhaul Upgrades & NICTBB Integration:

Replace microwave links with fiber or high-capacity wireless backhaul; integrate rural nodes into NICTBB via open-access neutral models.

6. Digital Inclusion & Literacy Campaign:

Launch a National Digital Inclusion Campaign targeting citizens (women, youth, PWDs, elderly) via mobile units, schools, and ambassadors. Subsidize smartphones (targeting price to reach below TZS 100,000) and data bundles (targeting Entry-level broadband subscription price to reach 2% of

monthly GNI per capita); zero-rate some of the education, health, and government services. Develop Swahili & Web Content Accessibility Guidelines (WCAG) minimum accessibility standard- compliant digital content ecosystem (apps, voice services, e-learning, e-health).

7. Policy & Standards Update: Revise Policies and taxes to stimulate smart device penetration and network expansion; strengthen public reporting mechanisms including Women, PWDs, and the elderly.

2.6.8 High-Speed Broadband Infrastructure

2.6.2.1 Key Gaps & Challenges

Despite Tanzania's national fibre backbone spanning 22,000 km nationally, only 15,066 km is currently activated for the NICTBB use, currently equipped with 2 Tbps link capacity. Utilization of the available capacity is at just 47% and some routes lack redundancy, operating on single-path configurations. Furthermore, around 30 district headquarters remain unconnected, while frequent fibre cuts, estimated at over 200 per year, mostly from uncoordinated roadworks, trigger outages lasting about 12 hours, severely disrupting e-government services, banking, education, and other essential digital operations.

Metro fiber is confined to Dar es Salaam and 5 other major cities; fixed broadband penetration is less than 1% with FTTx limited to high-income zones (about 139,317 FTTx subscriptions as of

December 2025). Mobile broadband speeds average 27 Mbps but drop to less than 5 Mbps in rural/semi-urban areas, with peak-hour congestion above 40%. QoS enforcement is weak because TCRA lacks real-time broadband monitoring tools.

IXPs outside Dar es Salaam remain severely underdeveloped, causing more than 80% of domestic traffic to be routed unnecessarily through Dar es Salaam or international links ("hairpinning"). This adds 50-300ms of latency and generates excess transit costs of approximately TZS 150-200 billion annually. CDNs are nascent locally with few major providers peering. Meanwhile, 5G population coverage stands at just 30%, and a national 6G roadmap is yet to be finalized.

2.6.2.2 Strategic Interventions

- 1. NICTBB Resilience & Expansion:** Extend core NICTBB with fully redundant routes to achieve 100 percent district coverage; expand access backhaul connectivity down to Ward level; and scale network capacity to fully utilize the existing transmission platform's design capacity of 32 terabits per second (32 Tbps). Ensure fully resilience integration with neighbouring countries and submarines cables.
- 2. Metro, FTTx & FWA Acceleration:** Deploy metro fiber, FTTx and FWA backhauled with optic fibre cable using Trench Once & shared ducts and poles/towers to achieve more premises connectivity (homes + institutions).

3. 4G/5G/6G Rollout: Complete the rollout of 4G coverage; Accelerate 5G coverage rollout; develop 6G-readiness plan with fiber-edge integration.

4. IXP&TrafficLocalization: Modernize and upgrade the existing 7 IXPs; establish 2 new regional IXPs; subsidize operation costs; attract more CDNs to localize at least 70% of the regional traffic; and Enhance Data Centre Investment.

5. Pricing & QoS Reforms: Reduce dark fiber/capacity tariffs to below 50% of current rates; deploy real-time QoS monitoring with public dashboards and penalties.

6. PPP Investment Mobilization: Reform the open-access PPP framework to unlock more private capital in backbone expansion.

2.6.3 Innovation and Emerging Technologies

2.6.3.1 Key Gaps & Challenges

With the national HPC capacity still emerging, the sovereign cloud is nascent, relying on foreign providers (e.g., AWS, Azure) with latency above 150ms, data egress costs more than TZS 50 Bn/year, and sovereignty risks. Domestic data centres support limited to 10 kW/rack, far below AI/HPC needs (> 40 kW/rack). Edge infrastructure is absent outside Dar es Salaam, blocking low-latency applications deployment such as AI, IoT, and tele-health.

The ICT innovation ecosystem remains fragmented; despite a growing network of

spaces, fewer than five hubs operate at full international acceleration capacity. Startup funding stagnates below TZS 10 Bn annually, mirrored by a low intellectual property output of fewer than 100 patents per year. On the infrastructure front, while IPv6 readiness stands at 10.7%, actual traffic usage is stalled below 0.5%. The continued reliance on Carrier-Grade NAT by major ISPs poses a significant risk of address exhaustion for upcoming IoT and smart city deployments. Furthermore, a critical skills gap persists, with fewer certified professionals in AI, HPC, and Cybersecurity, while public sector efficiency is limited by siloed, non-interoperable MDA platforms.

2.6.3.2 Strategic Interventions

1. National HPC & Sovereign Cloud: Deploy HPC (5 PFLOPS to 20 PFLOPS) and sovereign cloud (100 PB to 200 PB) to support public and private sector research, platforms including systems, digital innovations and catalyse interoperability.

2. Data Centre & Edge Modernization: Upgrade existing primary DC to Tier IV; Establish minimum new four Data Centres; deploy edge DCs across eight (8) zones to target less than 10ms latency in AI/IoT deployments.

3. Innovation Parks: Build a minimum of 7 multi-tenant parks with R&D labs, testbeds, incubators; anchor with government AI labs.

4. IPv6 National Rollout: Mandate IPv6 by 2028; enforce dual-stack transition to full adoption; integrate IPv6 requirement into public tenders.

5. ICT Fund & Skills: Launch National ICT Fund; train more professionals in AI, cloud, IPv6, and data science via technology parks, universities and ICT institutes.

2.6.4 Cybersecurity and Digital Trust

2.6.4.1 Key Gaps & Challenges

Despite the presence of TZ-CERT as the national cybersecurity focal point, there is a need for strengthening real-time integration with sectoral CERTs and Security Operations Centres (SOCs).

The National Public Key Infrastructure (NPKI) is still developing, currently approximately one-third of public e-services use automated certificates or digital signatures. Plans are ongoing to launch NPKI in the financial and commercial sectors as well as to the citizens. This will facilitate and strengthen authentication, integrity, and non-repudiation in government-to-citizen and government-to-business services.

A reliable national time synchronization service, critical for forensic accuracy, incident reconstruction, legal evidence, and SIEM correlation, remains underdeveloped. Many MDAs and sector systems rely on independent or inconsistent time sources, resulting in unsynchronized logs and significant complications for investigations, audits, and regulatory compliance.

Digital governance also faces structural gaps. Although the Personal Data Protection Act (PDPA, 2022) is in force, compliance across MDAs is below 20%, and sector regulators lack unified monitoring tools. The absence

of a national integrated digital governance dashboard across MCIT, TCRA, eGA, NIDA, and PDPC results in limited transparency, inconsistent enforcement, and weak cross-agency oversight.

Moreover, the accelerated deployment of AI systems in government services (health diagnostics, e-learning platforms, social assistance targeting) outpaces regulatory preparedness. AI bias, explainability, and accountability frameworks remain nascent, lacking national auditing standards or governance mechanisms aligned to PDPA, consumer protection, or sector regulations.

2.6.4.2 Strategic Interventions

1. National CSOC, SIEM, TIP & Sector Integration
 - Establish a National Cyber Fusion Centre / National CSOC under TZ-CERT, integrating: national SIEM, national TIP and STIX/TAXII-based automated sharing.
 - Mandate real-time telemetry feeds from telecom operators, MDAs, financial institutions, energy, water, transport, and health sectors to facilitate cybersecurity protection.
2. National NPKI Expansion & Time Synchronisation:
 - Roll out full NPKI adoption across all MDAs, regulators, licensed service providers, financial and commercial institutions and citizens.
 - Integrate NPKI into all e-services for authentication, signing, and encryption:

Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Government (G2G).

- Deploy a National Time Authority providing ± 1 ms precision across government and critical infrastructure.
- Mandate synchronized logging as a regulatory requirement for compliance, forensics, and digital evidence integrity.

3. Digital Governance Strengthening

- Strengthen PDPA enforcement, aiming for >80% MDA compliance within the next planning cycle.
- Deploy a Unified National Digital Governance Dashboard integrating MCIT, TCRA, eGA, NIDA, and PDPC for: real-time compliance monitoring, cyber posture analytics, digital service performance, and NPPI adoption tracking.
- Institutionalize periodic “Digital Governance Audits” for MDAs and LGAs.

4. National AI Ethics & Trust Framework

- Establish a National AI Ethics and Assurance Taskforce under MCIT & PDPC to:
- Develop national standards for algorithmic bias audits,
- Regulate use of AI in health, finance, education, and social services, and
- Define requirements for explainability, fairness, and accountability
- Introduce mandatory AI Impact Assessments for high-risk government systems.
- Promote responsible AI use aligned with

global norms (UNESCO, ITU, OECD frameworks).

2.6.5 Sustainability and Regional Integration

2.6.5.1 Key Gaps & Challenges

More than 90% of ICT sites are powered by diesel generators, resulting in annual emissions exceeding 500,000 tons of CO₂ (IEA, 2024). E-waste management systems are largely lacking, with fewer than 10% of devices being recycled. Although Tanzania has three major subsea cables and eight cross-border fiber links, the internet availability still depends much on major subsea cables concentrated in Dar es Salaam region and the lacks well-defined East-West-South-North redundancy. Policy and regulatory alignment with EAC, SADC, and AU frameworks also remains incomplete, particularly in areas such as spectrum management, Rights of Way (RoW), and data governance. Without stronger and proactive participation in regional Special Purpose Vehicles (SPVs), Tanzania risks its position as a strategic digital gateway in Eastern, Central and Southern Africa.

Another concern, Tanzania’s digital infrastructure faces high failure rates due to inadequate O&M measures:

- More than 35% of rural and underserved towers experience poor O&M performance and delayed restoration due to their commercial unviability. These sites experience annual outages exceeding 48 hours, often caused by battery failures, vandalism, or fuel theft (TCRA, 2025).

- Average Mean Time to Repair (MTTR) is above 72 hours in remote areas, far above the maximum 8-hour global benchmark;
- National predictive O&M framework is lacking, operators use fragmented, reactive models with OPEX leakage more than TZS 80 Bn/year;
- Skills gap: fewer certified field technicians nationwide, Leading to long-time fault clearance.
- E-waste from failed / retired equipment (batteries, routers, etc) is dumped illegally, undermining green ICT goals.

2.6.5.2 Strategic Interventions

1. Green ICT: Retrofit 50% of tower sites with solar-hybrid; Power Critical Infrastructure with Solar/Gas as alternative power source; enforce e-waste recycling and green procurement.
2. Predictive Maintenance: Mandate predictive maintenance to operators using IoT sensors, or proactive analytics in O&M to shift focus from reactive and periodic maintenance (e.g., annual audits).
3. Centralized Network Operations Centre (NOC): Establish a national NOC (co-located with CSOC) for real-time monitoring of critical information infrastructure. Use AI for fault prediction and automated ticketing.
4. Technician Training & Certification Program: Train 50,000 local technicians by 2036 via VETA, TVET, COSTECH, and operator partnerships. Deploy mobile repair units in all 26 regions.

5. Sustainable Spare Parts & E-Waste Recycling: Mandate local stockpiling of critical spares (batteries, transceivers) and producer take-back for failed equipment.
6. O&M Funding Model: Reform O&M funding model to performance-based subsidies for rural/underserved area/commercially unviable sites.
7. Regional Connectivity: Expand subsea cables connectivity; build East <-> West/South/North corridors resiliency connectivity; Add Landing stations in Zanzibar and Mtwara/Tanga; advocate and form regional SPVs for more traffic localization.
8. Harmonization: Launch Regional ICT Taskforce; integrate CSOC with EAC and SADC CERTs; align NIIM with RISDP, EAC DTS, AU-DTS, SDG9.

2.6.6 Institutional Strengthening and Governance

2.6.6.1 Key Gaps & Challenges

The deployment of broadband infrastructure in Tanzania faces delays from permit processing exceeding 90 days. Despite reduced RoW fees (USD 200/km initial, USD 100/km annual since 2023/24), the cost of RoW for deployment of optic fibre cable per km is still high compared to most countries. Infrastructure sharing remains voluntary, lacking a mandatory ordinance to prevent duplication. There is a need for proper coordination through the NBSC and establishment of national digital infrastructure registry. Lastly, there are over 200 annual fiber cuts occur due to uncoordinated excavation activities.

2.6.6.2 Strategic Interventions

1. Digital Permitting & Registry:

Launch e-permits so issuance of permits is below a 7-day timeline; build a real-time NDIR.

2. **Regulatory Reforms:** Advocate the reduction of RoW fees by 70% or more and provision of investment incentives (such as tax reduction) to infrastructure deployment and

support lowering the cost of operation (OPEX); Ensure predictable regulatory environment; enforce sharing and “Dig Once” phenomena.

3. Coordination & Standards:

Revitalize NBSC with key stakeholder involvement; integrate ICT-utility-transport infrastructure deployment; deploy monitoring dashboard; and update the expiring TNBS for the next 5-year period 2026/27-2030/31.





Chapter Three

The Strategic Framework

3.1 Vision and Mission

Vision

“A Digitally Empowered, Meaningfully and Universally Connected Tanzania “

Mission

“To build and sustain a robust, secure, and inclusive national digital ecosystem that delivers affordable, high-quality and uninterrupted meaningful connectivity to every citizen and business; accelerates the development of resilient, future-proof digital infrastructure; and positions Tanzania as preferred digital and innovation hub in the region.”

The vision is set to make Tanzania, a resilient regional digital infrastructure hub delivering universal and meaningful connectivity for everyone in Tanzania and across the region. The Mission articulate the strategic long-term aspirations for developing Tanzania’s digital infrastructure. They both provide a unifying direction for government institutions, private sector actors, and development partners to align their efforts toward building a resilient, inclusive, secure and sustainable digital ecosystem that supports the nation’s social and economic transformation.

3.2 Guiding Principles

3.2.1 Foundational Implementation Principles

The implementation of the NIIM is guided by a set of principles that ensure its relevance, inclusivity, sustainability, and strategic alignment with Tanzania’s national, regional

and international development aspirations. These principles serve as the foundation for coherent policy design, coordinated investment, and efficient implementation of digital infrastructure across all sectors and regions in the country. These principles are: Inclusive and Equitable Access, Resilient and Sustainable Development, Interoperability and Standards Compliance, Security and Trust, Innovation and Future Readiness and Policy Alignment and Complementarity. They are elaborated as follows:

Inclusive and Equitable Access: ICT infrastructure shall promote universal digital inclusion by ensuring that all citizens, regardless of geography, gender, age, or socio-economic status, have equitable access to quality, affordable and reliable connectivity.

Resilient and Sustainable Development: Infrastructure shall be designed and maintained for long-term resilience, incorporating environmentally responsible technologies, renewable energy solutions, and circular-economy practices to reduce carbon and electronic waste footprints.

Interoperability and Standards Compliance: All ICT systems and networks shall conform to open, national and internationally recognized standards to enable interoperability, secure data exchange, and cross-sector integration.

Security and Trust: Infrastructure design and governance shall prioritize cybersecurity, data protection, and privacy to safeguard national digital and data assets, citizen



information, and critical services.

Innovation and Future Readiness: Infrastructure development shall be designed to anticipate and adapt to emerging technologies such as 5G/6G or higher, artificial intelligence (AI), cloud computing, the Internet of Things (IoT), and quantum communications to ensure long-term relevance and scalability.

The adoption of IPv6 is paramount to enable seamless migration to future-ready IP addressing, supporting large-scale IoT deployments, smart city integration, and the next generation of connected services.

Policy Alignment and Complementarity: The Masterplan harmonizes with existing national, regional, and continental digital transformation strategies to ensure coherence, avoid duplication, and leverage synergies across initiatives.

3.2.2 Strategic Alignment

The NIIM operationalizes and complements national and international development frameworks, with particular emphasis on the connectivity and infrastructure dimensions that underpin digital transformation. Its guiding principles and programmes align with the following strategies and sector-specific frameworks as shown in Table 2:

Table 2: Strategic Alignment of the NIIM

Category	Strategy/Framework	Focus/Relevance to ICT Infrastructure
National Frameworks	Tanzania Development Vision 2050	Envisions a knowledge-based, innovation-driven economy; ICT infrastructure as a key productivity and competitiveness enabler
	Five-Year Development Plan III (FYDP III, 2021/22-2025/26) and Five-Year Development Plan IV (FYDP IV, 2026/27-2030/31)	Prioritizes ICT infrastructure for industrialization, e-government, education, health service delivery and other public service delivery
	Tanzania Digital Economy Strategic Framework (2024-2034)	Defines six pillars, digital infrastructure, skills, e-governance, and innovation, with infrastructure as the backbone for inclusion
	e-Government Strategy (2022)	Promotes a connected, integrated, and coordinated government ecosystem leveraging shared ICT infrastructure.
	Government Cybersecurity Strategy (2022-2027)	Strengthens protection of digital infrastructure, promotes cyber resilience, and secures public networks and services.

Category	Strategy/Framework	Focus/Relevance to ICT Infrastructure
	National Digital Education Strategy (2025-2029/30)	Expands broadband access for schools and promotes the use of ICT in teaching, learning, and digital literacy.
	Tanzania Digital Health Strategy (2019-2024)	Connects health facilities, promotes telehealth, and supports data-driven, interoperable health systems
	Tanzania National Broadband Strategy (TNBS, 2021-2026)	Expands national fiber backbone, targets universal broadband coverage, and sets performance benchmarks through 2026
	Spectrum Management Strategy (2024/2025-2034/2035)	Guides efficient spectrum utilization, promotes 5G and emerging technology readiness, and ensures equitable access for operators and innovators
	National Frequency Allocation Plan (2024)	Defines national frequency distribution, harmonizes use across sectors, and supports coordination with regional and international spectrum frameworks
Regional Frameworks	African Union (AU) Digital Transformation Strategy for Africa (2020 -2030)	Promotes integrated broadband, innovation ecosystems, and data governance for a unified African single digital market
	SADC Digital Transformation Strategy (2021-2030) Issued in 2023	Supports regional ICT integration, Universal affordable Access, harmonized policies, and capacity development
	East African Community (EAC) Digital Transformation Frameworks	Focuses on cross-border broadband interconnections, One Area Network coordination, digital identity interoperability, cross boarder digital services and online digital economy
International Frameworks	UN Sustainable Development Goals (SDGs)	Advances SDGs through inclusive connectivity and digital infrastructure development
	WSIS & Global AI Governance Initiatives	Promotes inclusive, ethical, and development-oriented digital transformation under WSIS and global AI frameworks
	ITU Global Digital Transformation & Broadband Commission Frameworks	Aligns with ITU Connect 2030 Agenda and Broadband Commission goals on universal access, affordability, and meaningful connectivity
	UN Global Digital Compact (2024)	Promotes a secure, open, and human-centred digital future; advances universal connectivity, ethical AI, interoperable data governance, and cyber-resilience; and provides a global alignment framework that strengthens Tanzania's positioning within international digital infrastructure standards

TCRA plays a key role in implementing and localizing directives and technical standards from regional and international institutions such as the ITU, the African Telecommunications Union (ATU), the Communication Regulators' Association of Southern Africa (CRASA), and EACO. Through this engagement, TCRA harmonizes Tanzania's frameworks for licensing, spectrum management and quality of service with global best practices, enhancing regulatory efficiency, and promoting cross-border interoperability, ensuring NIIM alignment with evolving global and regional ICT ecosystems.

By aligning with these national, regional, and international frameworks, the NIIM reinforces policy coherence and operational synergy in the development of Tanzania's digital infrastructure. This alignment ensures that infrastructure investments are strategically guided, mutually reinforcing, and directed toward achieving the national digital transformation agenda, regional integration, and global connectivity, while meeting sustainability commitments.

3.3 Strategic Focus Areas

This 10 year NIIM organizes objectives, strategies and actions around six themes (focus areas) that together deliver resilient, inclusive, secure, and sustainable digital infrastructure for sustainable development.

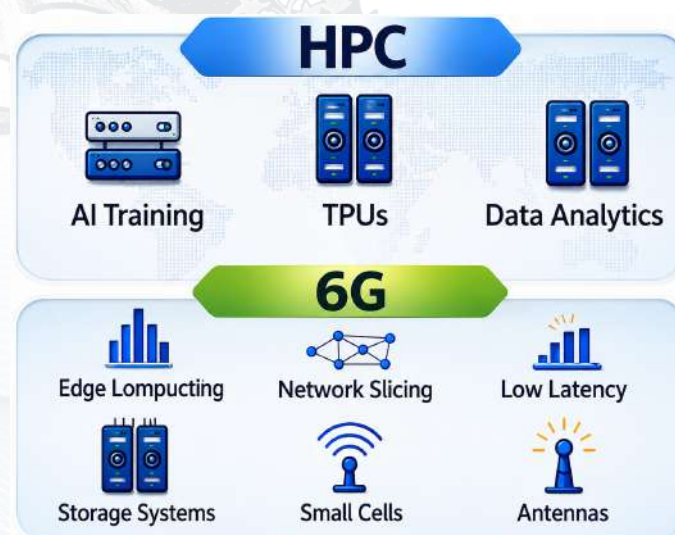
3.3.1 Universal Access and Digital Inclusion (Bridging the Digital Divide)

The expanding universal broadband access

remains the foundation for inclusive national connectivity. The NIIM aims to extend quality and affordable high-speed internet coverage to rural and underserved communities through backbone extensions, last-mile solutions including public Wi-Fi deployments and broadband satellites, accelerating smart devices penetration and other targeted interventions. This will assist to bridge the digital divide, ensuring that all Tanzanians, regardless of geography or income, can benefit from participation in the digital economy.

3.3.2 High-Speed Broadband Infrastructure

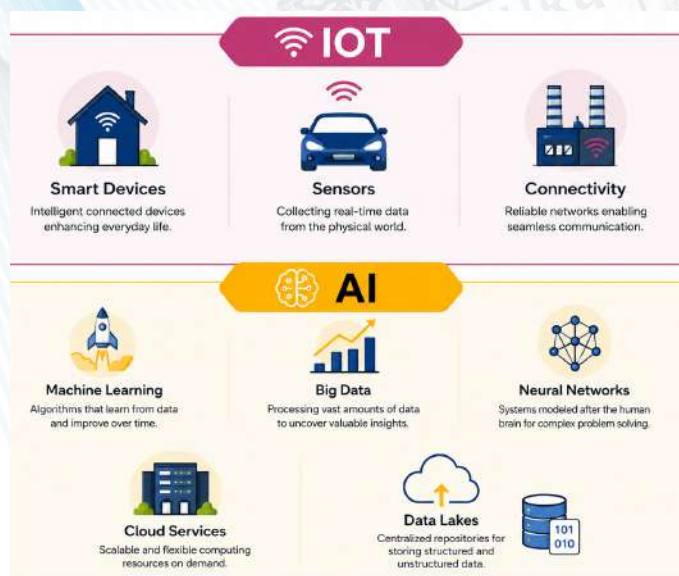
The NIIM prioritizes scaling and strengthening the NICTBB while accelerating deployment of 4G/5G/6G or higher, FTTx infrastructure and other smart city infrastructure. It promotes modernization of IXPs and expansion of public Wi-Fi zones to ensure that high-demand urban centres and institutions are served with reliable, high-capacity broadband connectivity that meets global performance standards.



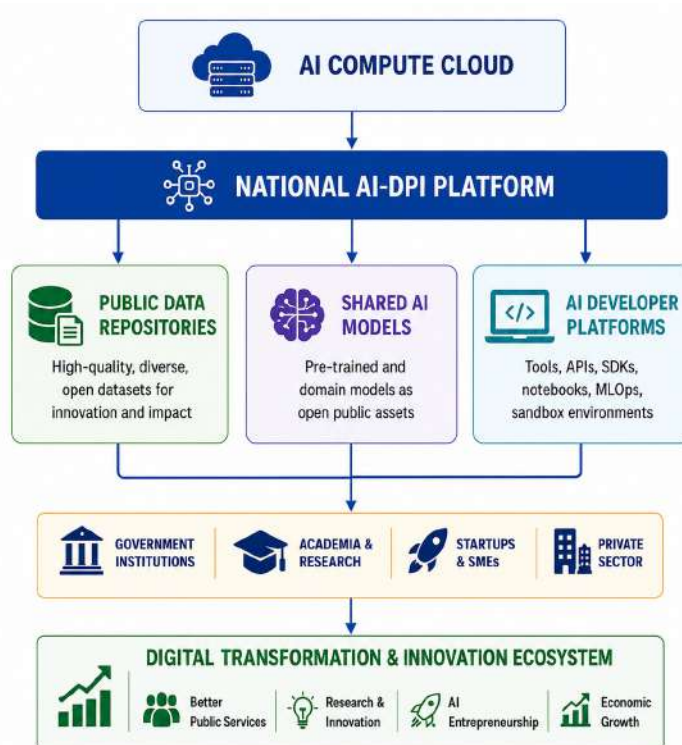
3.3.3 Innovation and Emerging Technologies

To unlock Tanzania's potential in the innovation-driven digital economy, the NIIM promotes technology parks, shared innovation labs, IPv6 adoption, and national cloud and high-performance computing (HPC) infrastructure. These enablers will foster research, startups, and digital entrepreneurship.

IPv6 adoption is critical for providing the scalability, security, and interoperability needed for next-generation digital services, including IoT, smart cities, and industrial automation. It also prepares Tanzania for emerging technologies such as 5G/6G or higher, AI, edge computing, blockchain and quantum communications, while supporting cross-border data flows and regional digital trade. Collectively, these initiatives will underpin interoperable public and private sector platforms, trusted digital financial services, and a vibrant innovation ecosystem that drives inclusive growth and national competitiveness.



To support digital transformation and innovation ecosystem in Tanzania, a National Artificial Intelligence Digital Public Infrastructure (Jamii AI) will be established. This initiative will treat core AI capabilities including compute infrastructure, public datasets, shared AI models and development platforms; as strategic public goods that can be accessed by government institutions, academia, startups, and the private sector.



The AI Infrastructure will leverage national data centres, sovereign cloud platforms; and High-Performance Computing (HPC) facility to provide scalable compute resources and secure data environments for AI development and research. It will also promote the creation and responsible sharing of national datasets, including sector-specific data in areas such as agriculture, health, education, climate, and digital government services, while ensuring compliance with national data protection

and cybersecurity regulations. By providing common infrastructure and standards for AI development, the AI Infrastructure will lower barriers to innovation, strengthen national data sovereignty, support the development of local AI solutions, including Swahili language technologies and position Tanzania as a regional hub for responsible and inclusive AI innovation.

3.3.4 Cybersecurity and Digital Trust

A secure and resilient digital ecosystem is essential for sustaining Tanzania's digital transformation. The NIIM builds on existing national cybersecurity frameworks anchored by the National TZ-CERT, established under the Electronic and Postal Communications (Computer Emergency Response Team) Regulations, and the NPPI. TZ-CERT coordinates cybersecurity incidents and the protection of Critical Information Infrastructure (CII) nationwide, complemented by emerging sectoral CERTs such as TZ-FinCERT and eGSOC. The NIIM will reinforce these efforts by promoting interoperability across sectoral CERTs, strengthening compliance with data protection and incident-response standards, facilitating rollout of PKI and supporting the optimization of national cyber response capabilities. Collectively, these measures will enhance national cyber resilience, uphold

digital sovereignty, and foster public trust in digital systems and services.

3.3.5 Sustainability and Regional Integration

The NIIM embraces green ICT development and regional digital cooperation as core principles. It promotes energy-efficient data centres, renewable-powered networks, and smart environmental management in ICT deployment. At the same time, it advances regional connectivity integration, positioning Tanzania as a resilient digital hub for East and Central Africa, capable of enabling cross-border data flows, digital trade, and infrastructure interconnection.

3.3.6 Institutional Strengthening and Governance

Effective coordination, regulation, and institutional capacity are the backbone of sustainable ICT infrastructure deployment. The NIIM will strengthen inter-agency collaboration, streamline RoWs and permit systems, and enhance the regulatory framework to promote open access, infrastructure protection & sharing, and investment efficiency. Establishing a NDIR, empowering the NBSC and adopting best-practice regulatory reforms will ensure governance coherence, transparency and alignment with international standards.

3.4 Objectives, Strategies and Projects

The implementation of the NIIM is driven by a set of strategic pillars and objectives that translate the Vision and Strategic focus areas into actionable programmes. These objectives are underpinned by clearly defined strategies and implementable initiatives as shown in Table 3, that designed to ensure coherence, measurable impact, and effective coordination among stakeholders.

The successful delivery of these initiatives will require close coordination among ministries, agencies, regulators, private sector operators, development partners, and local government authorities. The Ministry responsible for Communication and Information Technology will provide strategic leadership and oversight through the NBSC and other inter-ministerial coordination platforms.



Table 3: Objectives, Strategies and Initiatives

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
1	Universal Access and Digital Inclusion (Bridging the Digital Divide)	Achieve >95% equitable broadband access and high speed internet penetration including rural and underserved areas	Expand universal broadband, community digital inclusion, and demand-side adoption	1	Deploy 5,590 safe & trusted public Wi-Fi hotspots at education & health facilities, LGAs (wards), transport hubs, and market centres (Ref. Annex 2)	MCIT, UCSAF, REA, TCRA, TANESCO, ZECO, LGAs, MNOs, ISPs, Dev Partners	2026-2036
				2	Establish and equip 1,000+ community ICT hubs with shared devices, solar power, and onsite digital literacy trainers for training, e-services, and device access	MCIT, UCSAF, REA, TCRA, TANESCO, ZECO, LGAs, MNOs, ISPs, ICTC, NGOs	2026-2036
				3	Expand UCSAF-supported rural towers and broadband coverage to 100% population coverage (Ref. Annex 7.5)	MCIT, UCSAF, REA, TCRA, TANESCO, ZECO, MNOs, ISPs	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				4	Deploy Broadband satellite (LEO/GEO) + Fixed Wireless Access (FWA) for remote and hard to reach areas with backhaul integration to NICTBB	MCIT, UCSAF, TCRA, MNOs, ISPs, Other Licensed Satellite Service Providers	2026-2036
				5	Launch National Digital Inclusion & Literacy Campaign targeting 5M citizens (women, youth, PWDs, elderly) via mobile units, schools, and community ambassadors	MCIT, MoEST, ICTC, PMO-RALG, UCSAF, NGOs, MNOs, Media, Dev Partners	2026-2031
				6	Subsidize affordable smartphones (<TZS 100,000) and low-cost data bundles (Entry-level broadband subscription price ≤ 2% of monthly GNI per capita); zero-rate education, health, and gov services	MCIT, UCSAF, TCRA, MNOs, ISPs, MoF, Device Manufacturers, Dev Partners	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				7	Develop Swahili & accessible digital content ecosystem (WCAG-compliant apps, voice services, e-learning, e-health) via National Content Taskforce	MCIT, ICTC, COSTECH, eGA, eGAz, MoEST, MoH, Private Developers, Dev Partners	2026-2031
				8	Align ICT-Energy rollout under joint MCIT-REA-TANESCO-UCSAF framework; deploy shared renewable power systems for multi-tenant rural towers	MCIT, REA, TANESCO, UCSAF, MNOs, Tower Telecom Service Providers	2026-2036
				9	Upgrade backhaul from microwave to fiber/high-capacity wireless; integrate rural nodes preferably via open-access neutral models into NICTBB	MNOs, UCSAF, TTCL, ZICTIA	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				10	Update Policies and taxes to stimulate smart device penetration and network expansion; strengthen public reporting mechanisms including Women, PWDs, and the elderly	MCIT, ICTC, TCRA, MoF, UCSAF, PMO-RALG, MoCDGWSG	2026-2028
				11	Connect educational and training facilities to broadband internet	MCIT, MoEST, PMO-RALG, UCSAF, Private Sector	2026-2036
				12	Connect health services delivery facilities (hospitals, health centres, clinics & dispensaries) with broadband internet	MCIT, MoH, TTCL, PMO-RALG, MNOs, ISPs, UCSAF	2026-2036
				13	Equip educational & training facilities with computer labs (devices and offline/online educational content); ensure maintenance/ support	MCIT, MoEST, PMO-RALG, UCSAF, Private Sector	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
2	High-Speed Broadband Infrastructure	Ubiquitous quality high-speed internet broadband services (Average Speed ≥ 100 Mbps down, ≤ 100 ms latency)	Modernize backbone, access, metro, and last-mile; strengthen IXPs	14	Reform open-access PPP framework for NICTBB to attract more digital infrastructure investment	MCIT, TTCL	2026-2028
				15	Review & Rationalize wholesale tariffs for dark fiber & capacity to competitive market rates	MCIT, TCRA	2026-2028
				16	Extend & harden NICTBB with dual-path redundancy to all regions/districts including cross-border backups (Ref. Annex 7.2)	MCIT, TTCL, ZICTIA, TANESCO, ZECO, TRC, TAZARA, MNOs	2026-2036
				17	Expand access backhaul fiber (about 45,000 km) to priority wards (Ref. Annex 7.1)	MCIT, MNOs, ISPs, TCRA, UCSAF	2026-2036
				18	Upgrade NICTBB core capacity to ≥ 10 Tbps (2031) -> ≥ 32 Tbps (2036)	MCIT, TTCL, ZICTIA	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				19	Deploy metro fiber + FTTx in 50+ towns under Trench Once & shared ducts and Poles	TCRA, MNOs, ISPs, LGAs	2026-2036
				20	Upgrade to 5G nationally; develop 6G-readiness roadmap with fiber & edge integration	MCIT, TCRA, MNOs, UCSAF	2026-2036
				21	Subsidize IXP operation costs; eliminate barriers for ISPs	MCIT, TCRA, TISPA	2026-2036
				22	Modernize existing IXPs (capacity, security, automation)	MCIT, TISPA, UCSAF, MNOs, Dev Partners	2026-2031
				23	Establish 2 new regional IXPs (Southern & Western Zones)	MCIT, TISPA, TCRA, MNOs, ISPs	2032-2036
				24	Attract more CDNs & hyperscalers (Google, Meta, Netflix, Amazon, etc) to host locally	MCIT, TISPA, TCRA, MNOs, ISPs, Private Sector	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				25	Enforce QoS standards via real-time monitoring and public dashboards	TCRA, MNOs, TCRA-CCC, Consumer Groups	2026-2028
3	Innovation and Emerging Technologies	Availability of sovereign computing, innovation hubs, and future-ready networks	Develop HPC, data centres, edge, IPv6, and startup ecosystems	26	Upgrade primary data centres to Tier III/IV (20-40 MW) and regional edge DC nodes; Establish minimum new four Tier III/IV Data Centre.	MCIT, NIDC, ZICTIA, TCRA, Private Sector, Dev Partners	2026-2036
				27	Establish national HPC (≥ 5 PFLOPS $\rightarrow$ 20 PFLOPS) and sovereign cloud (100 PB)	MCIT, MoEST, NIDC, COSTECH, Private Sector	2029-2036
				28	Build 7 innovation & tech parks (Dsm, Zanzibar, Coast (Bagamoyo/ Kwala), Arusha, Dodoma, Mwanza, Mbeya) with R&D labs, testbeds, incubators	MCIT, ICTC, COSTECH, Private Sector	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				29	Establish 20 distributed edge data centres across 8 zones – Zanzibar, Dodoma, Arusha, Mwanza, Mbeya, Mtwara, Kigoma, and Tanga (at least 2-3 per zone) to enable low-latency processing, local content caching, and sovereign data handling for AI, IoT, and digital public services	MCIT, NIDC, ZICTIA, MNOs, ISPs, Private Sector	2026-2036
				30	Enforce and implement a National IPv6 Migration Strategy and Adoption Plan (dual-stack -> full adoption). Mandate IPv6 by 2028.	MCIT, TCRA, eGA, TISPA, MNOs, ISPs, and All members of AFRINIC	2026-2028

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				31	Integrate IPv6 compliance requirements into public ICT procurement and infrastructure standards	MCIT, TCRA, eGA, eGAz, PPRA, TBS	2026-2028
				32	Establish regulatory and technical frameworks to support IPv6 deployment across networks and services	MCIT, TCRA	2026-2028
				33	Launch National ICT Fund; support startups, innovation and other ICT projects	MCIT, ICTC, Private Sector, Dev Partners	2026-2031
				34	Train 10,000+ professionals in AI, cloud, IPv6, data science	MCIT, ICTC, MoEST, HLIs UCSAF, TCRA, Dev Partners, Private Sector	2026-2036
4	Cybersecurity and Digital Trust	Ensure secure, trusted, resilient public digital infrastructure	Strengthen GovNet, sectoral connectivity, and cyber defence	35	Expand coverage of GovNet to all LGAs and MDAs facilities/ service delivery points with multi-site failover for government systems	MCIT, eGA, TTCL (NICTBB), MDAs, LGAs	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				36	Enhance GovESB, Jamii Exchange and ZanExchange for interoperable digital platforms	MCIT, eGA, eGAz, MDAs, LGAs	2026-2036
				37	Establish National CSOC and integrate with TZ - CERTs to improve national early warning and response	MCIT, TCRA	2026-2031
				38	Integrated sectoral CSIRTs with TZ-CERT; audits/ exercises	MCIT, TCRA, Sector Ministries/ Institutions	2026-2031
				39	Strengthen NPKI, and rollout to Government entities, Financial Institutions, Commercial Institutions and Citizens	MCIT, ICTC, NIDA, TCRA, Bank of Tanzania, eGA, eGAz, PDPC	2026-2031

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				40	Deploy a National Reference Time System (National Clock) integrated with the ICT infrastructure network to provide precise, traceable time synchronization for data centres, telecom networks, and cybersecurity systems	MCIT, TCRA, TTCL, ZICTIA, eGA, MNOs/ ISPs	2026-2031
				41	Strengthen PDPA implementation; harmonize sectoral frameworks; Including Establishment of a Data Sharing Governance Framework and a National Consent Management Framework; Ensuring Adherence to the National Privacy by Design and by Default Standards for ICT Infrastructure	MCIT, PDPC, TCRA, MDAs, LGAs	2026-2031

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				42	Establish a National AI Ethics and Assurance Taskforce	MCIT, PDPC, TCRA, eGA, ICTC	2026 - 2031
5	Sustainability and Regional Integration	Promote green ICT and regional digital hub status	Advance sustainability, cross-border fiber, and policy harmonization	43	Upgrade towers/ data centres/NICTBB remote sites with solar-hybrid systems	MCIT, TTCL, TCRA, MNOs/ ISPs, Tower Service Providers	2026-2036
				44	Develop four (4) new subsea cable landings(Dar es Salaam, Zanzibar, Mtwara/Tanga); complete East -> West/South/North terrestrial links; align with EAC/SADC/AU master plans	MCIT, TTCL, ZICTIA, TCRA, ISPs/MNOs, Subsea cable consortia, Dev Partners	2026-2036
				45	E-waste systems and green procurement as per EAC/SADC	MCIT, NEMC, TCRA, Private Sector	2026-2031
				46	Develop resilient regional fiber corridors (East-West/South/North); integrate with One Africa Network/Smart Corridors	MCIT, TTCL, MNOs, ISPs, Regional Partners (EAC/SADC)	2026-2036

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				47	Alignment of spectrum/RoW/data/cyber operation and management across the region (EAC and SADC)	MCIT, TCRA, MFAEAC, EAC/SADC Secretariats	2026-2028
				48	Integrate CSOC with SADC/EAC CERTs for joint response/intelligence	MCIT, TCRA, SADC, EAC	2026-2031
				49	Establish Regional SPVs/PPPs to co-finance in cross-border fiber, subsea cable landings, and open-access wholesale/CDN hosting platforms, positioning Tanzania as the EAC/SADC digital gateway with 70% regional traffic localized by 2036	MCIT, MNOs, ISPs, Dev Partners, Private Sector	2026-2036
				50	Align NIIM M&E with SADC RISDP/EAC M&E & AU/UN SDGs	MCIT, TCRA, ICTC, Regional & International Bodies	2026-2028

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
		Enhance long-term resilience and efficiency of digital infrastructure through proactive O&M	Establish national O&M policy, NOC, and technician programs	51	Develop and operationalize National O&M Policy & SLA Framework mandating 99.5% uptime, predictive maintenance, and performance-based contracts for all critical digital infrastructure	MCIT, TCRA, MNOs, ISPs	2026-2028
				52	Ensure Network Operation Centres (NOCs) are equipped with AI-driven monitoring, fault prediction, and integration with CSOC for real-time infrastructure management	MNO, ISPs, TCRA	2029-2031

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				53	Launch National O&M Technician Training & Deployment Program to certify and deploy skilled personnel for routine maintenance, repairs, and upgrades across rural and urban sites	MCIT, ERB, VETA, TVET, NACTIVET, ICTC, TCRA, MNOs, ISPs	2026-2036
6	Institutional Strengthening and Governance	Improve coordination, efficiency, and investment climate	Streamline governance, reduce barriers, enforce standards	54	Strengthen NBSC with private sector participation; strengthen inter-ministerial coordination; mandate unified planning, dispute resolution, and annual infrastructure roadmap	MCIT	2026-2028
				55	Develop database for gazetted Critical Information Infrastructure and ensure their protection	MCIT	2026-2028

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				56	Develop & Operationalize one-stop digital permitting platform (e-permits)	MCIT, TCRA, NEMC, PMO-RALG, Roads Fund Board, TANROADS / TARURA, TANESCO, TRC, MNOs/ ISPs and Related Zanzibar Authorities	2026-2028
				57	Develop National Digital Infrastructure Registry -NDIR	MCIT, TCRA, MNOs/ ISPs	2026-2028
				58	Review and rationalize right of way and other operation fees for ICT critical infrastructure (fiber cable, IXPs, DCs, etc.) to encourage shared broadband infrastructure builds	MCIT, MoW, TCRA, MNOs, ISPs	2026-2028
				59	Review and reduce RoW fees to lower deployment costs, expand fiber networks in underserved areas, and attract private investment	MCIT, PMO-RALG, MoW, TANROADS, TARURA, TRC, TPDC, EACOP	2026-2028

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				60	Establish RoW Digital Infrastructure corridor and guideline for fiber infrastructure maintenance and relocations along roads ROWs	MCIT, MoW, MLHSD, TANROADS, TARURA, TCRA, TAMNOA	2026-2028
				61	Update Infrastructure Sharing Regulations to effectively mandate/enforce infrastructure sharing (ducts, fiber, poles, towers, power, DCs, RAN, etc.)	MCIT, TCRA	2026-2028



S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				62	Streamline Licensing & RoW Regulations - Implement “Deemed Approval” for RoW within 7 days; digitize permit processes via single-window platform; enforce “Dig Once” framework nationally obliging operators / ISPs to implement shareable (multi-tenants) ICT infrastructure (ducts, aerial fiber Poles, towers)	MCIT, TCRA, PMO-RALG, Roads and Railway Agencies,	2026-2028
				63	Integrate ICT-utility - transport infrastructure planning & deployment	MCIT, UCSAF, MoE, MoW, MoT, MoWA, EWURA, TCRA, REA/ TANESCO, TANROADS/ TARURA, TRC, TPDC	2026-2036
				64	Establish an integrated digital infrastructure monitoring and analytics dashboard	MCIT, TCRA, ICTC, MNOs, ISPs	2026-2028

S/N	Strategic Pillar	Objective	Strategies	Prj#	Key Initiatives Actions (Projects)	Stakeholder (s)	Time Frame
				65	Consolidate a unified National ICT Infrastructure Code defining uniform standards for fiber, towers, and data centres	MCIT, TCRA, TBS	2026-2028
				66	Update Environmental and Green ICT Regulations to simplify EIA procedures for low-impact ICT projects; enforce green procurement in all ICT tenders and e-waste management	MCIT, NEMC, PPRA, TCRA	2026-2028
				67	Strengthen regulatory compliance through awareness and training 100+ regulatory and technical staff annually;	MCIT, TCRA, TAMNOA, MNOs, ISPs, TISPA, Dev Partners	2026-2031
				68	Update/Develop TNBS 2027-2032 and Cloud Regulation Framework	MCIT	2026-2028

3.5 Indicators and Targets

The NIIM adopts a theme-based performance measurement framework to track implementation progress and outcomes across short-term (by 2028), medium-term (by 2031), and long-term (by 2036) horizons. These indicators are closely aligned with the National Broadband Strategy, the National Digital Economy Framework, the Digital Tanzania Programme, and related sectoral strategies in education, health, and e-Government. Each indicator provides a quantitative measure of impact across six thematic strategic focus areas - Universal Access and Digital Inclusion, High-Speed Broadband Infrastructure, Innovation and Emerging Technologies, Cybersecurity and Digital Trust, Sustainability and Regional Integration, and Institutional Strengthening and Governance.

Annex 4 provides detailed indicators and targets to serve as the quantitative framework for the NIIM implementation monitoring, guiding the National ICT Infrastructure Steering Committee and relevant MDAs. These targets will be reviewed periodically to reflect technological advances and evolving policy priorities. All progress reporting will feed into the Monitoring, Evaluation, Learning and Adaptation (MELA) framework under Section 3.8, ensuring evidence-based decision-making, performance accountability, and alignment with the National Development Vision 2050.

3.6 Implementation Framework

3.6.1 Governance and Delivery

Effective implementation of the NIIM requires a clearly defined governance structure that ensures policy alignment, coordination, and accountability across all implementing entities. Table 4 shows the institutional roles and responsibilities in NIIM implementation, which is to be led by the Ministry responsible for Communication and Information Technology, supported by the NBSC as the apex inter-agency body overseeing planning, execution, and performance monitoring.

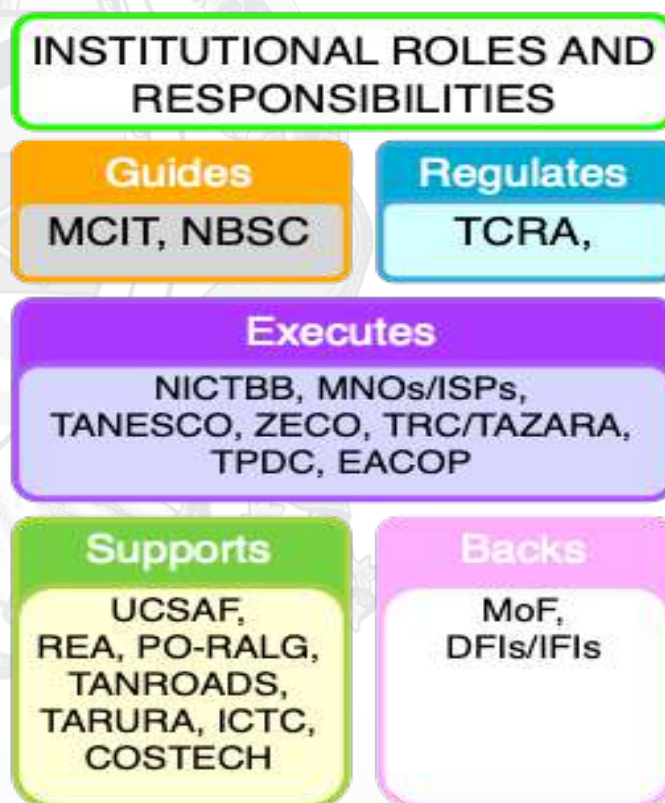


Table 4: Institutional Roles and Responsibilities in NIIM Implementation

Institution / Entity	Role and Responsibility in NIIM Implementation
Ministry responsible for Communication and Information Technology (MCIT)	Leads the NIIM implementation as the national policy and coordination authority. Oversees planning, resource mobilization, and harmonization of NIIM with national development frameworks and digital transformation strategies. However, in respect of matters falling under the jurisdiction of the Revolutionary Government of Zanzibar, the Ministry shall work closely with the Ministry responsible for communications of the Revolutionary Government of Zanzibar.
National Broadband Steering Committee (NBSC)	Provides strategic oversight, coordination, and monitoring of NIIM implementation. Ensures cross-sector alignment, evaluates progress, and advises on policy or investment adjustments to sustain the rollout of broadband and ICT infrastructure.
Tanzania Communications Regulatory Authority (TCRA)	Regulates and oversees the ICT sector in line with NIIM objectives. Facilitates spectrum planning, licensing, and enforcement of infrastructure-sharing and service quality regulations critical to broadband expansion.
Tanzania Telecommunications Corporation (TTCL) and Zanzibar Communication Corporation (ZICTIA)	Implements NIIM's NICTBB expansion in the mandated areas. Operates, maintains, and upgrades core connectivity infrastructure, ensuring interoperability with private sector networks and regional links.
Universal Communications Service Access Fund (UCSAF)	Finances NIIM-related universal access projects in unserved and underserved areas. Aligns subsidies and grants with NIIM rollout phases to extend equitable and affordable broadband access.
Information and Communication Technologies Commission (ICTC)	Supports NIIM implementation through human capital development, digital innovation, and local technology promotion. Ensures institutional readiness and skilled workforce for ICT infrastructure growth.
Tanzania Commission for Science and Technology (COSTECH)	Advances NIIM objectives through research, innovation, and incubation of ICT solutions. Coordinates R&D initiatives, promotes the adoption of emerging technologies, and links academia with industry to localize NIIM technologies.
Tanzania Electric Supply Company (TANESCO) and ZECO	Supports NIIM through shared use of its poles networks and ensuring reliable power. Facilitate development of NICTBB infrastructure and ensures reliable power supply.
TANROADS, TARURA, ZANROADS, RALG, NEMC	Support NIIM through ROWs approval, access roads facilitation, construction permits and environmental approvals for ICT infrastructure deployment projects
Private Sector, ISP, MNOs and Telecom Operators	Collaborate with NIIM-aligned broadband rollouts. Invest in network expansion, adopt open-access models, and participate in infrastructure sharing under the "Trench Once" principle.
Development Partners DFIs/IFIs (World Bank, AfDB, EU, etc.)	Provide financial, technical, and institutional support for NIIM implementation. Facilitate co-financing, technology transfer, and capacity building to accelerate national connectivity goals.

Source: NIIM Governance Framework, 2026

3.6.2 Estimated Budget and Funding Framework

The NIIM estimates a total investment of TZS 15,277 billion over ten years to accelerate digital transformation and inclusive connectivity.

The budget allocations prioritise Universal Access and Digital Inclusion as well as High-Speed Broadband Infrastructure, which account for 33.8% and 33.5% of the total envelope, respectively. These priorities reflect a strong commitment to ensuring the availability, accessibility, and affordability of reliable high-speed internet services for all citizens

across the country. Innovation and Emerging Technologies receive substantial investment, constituting 24.1% of the total budget. These funds will support the development of national data centres, sovereign cloud infrastructure, high-performance computing (HPC) facilities, and innovation parks to foster startups, research and development (R&D) initiatives, and technological advancement. Cybersecurity and Digital Trust, Sustainability and Regional Integration, and Institutional Strengthening and Governance receive 3.4%, 5.0%, and 0.2% respectively, thereby completing the overall investment envelope. (See Table 5 and Annex

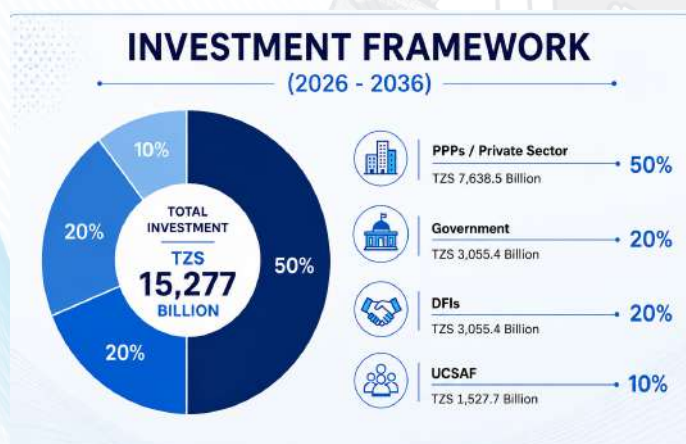
Table 5: Funding Allocations and Sources

Focus Area	Budget (TZS Bn)	Share (%)	Main Funding Sources	Typical Uses
Universal Access and Digital Inclusion (Bridging the Digital Divide)	5,157	33.8%	UCSAF, Government, PPP & Private Sector (MNOs, ISPs Development Partners)	Rural broadband access; community ICT hubs; Wi-Fi and satellite connectivity
High-Speed Broadband Infrastructure	5,112	33.5%	PPP & Private Sector (MNOs, ISPs), Government, Development Partners	NICTBB expansion; metro fiber; FTTx; 5G/6G rollout; IXPs; CDN peering
Innovation & Emerging Technologies	3,686	24.1%	Government, Development Partners, Private Sector	Tier III/IV data centres; sovereign cloud; IPv6, AI/ML infrastructure; innovation parks; startups
Cybersecurity & Digital Trust	525	3.4%	Government, Development Partners,	GovNet, e-Government platforms; CSOC; PKI; National Reference Time System; Jamii Exchange and GovESB integration
Sustainability & Regional Integration	766	5.0%	DFIs, Subsea Cable Consortia, Private Sector, PPP	Green ICT (solar-hybrid systems); National NOC, subsea and cross-border fiber links; EAC/SADC/AU integration
Institutional Strengthening & Governance	31	0.2%	Government, Development Partners	Regulatory reforms; one-stop RoW portal; NDIR; monitoring dashboard; policy alignment
Total	15,277	100%		

Source: NIIM Budget Framework, 2026

5 for expected funding sources and detailed breakdowns respectively).

Financing for the NIIM will blend approximately 2 - 3% of GDP in investment with contributions from Government, UCSAF, PPP, Public and private sector capital, and support from international financial institutions (IFIs) and development finance institutions (DFIs). The program will leverage diverse financing mechanisms, including Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), and Design-Build-Finance-Operate-Transfer (DBFOT) models, as well as viability-gap funding, anchor tenancy arrangements, vendor financing, and climate finance windows. This blended approach ensures inclusive,



resilient, and sustainable digital infrastructure development, supporting a future-ready digital transformation across all sectors.

3.6.3 Stakeholder Engagement & Inclusion

Sustained multi-stakeholder engagement is essential for inclusivity, transparency, and shared ownership of outcomes. The engagement framework strengthens collaboration among public institutions, private-sector actors, academia, civil society, and communities.

Annually Sector Fora coordinated by the MCIT and the NBSC will convene telecom operators, ICT service providers, startups, development partners, and community representatives to review progress, share ideas and innovations, and address challenges.

In parallel, thematic working groups will focus on cross-cutting issues including infrastructure sharing, environmental compliance, cybersecurity, data governance, and gender inclusion in the digital economy. A Stakeholder Communication Platform, integrated within the NIIM digital dashboard, will facilitate continuous dialogue, knowledge exchange, and dissemination of updates, reports, and collaboration opportunities. The engagement process will adhere to principles of transparency, participation, and inclusivity, ensuring representation of youth, women, and persons with disabilities at all stages. This reinforces Tanzania's commitments to SDG 9 (Industry, Innovation and Infrastructure) and SDG 10 (Reduced Inequalities).

3.6.4 Policy & Regulatory Support

Effective execution of the NIIM depends on an enabling policy and regulatory environment. Key interventions include:

- Review and alignment of ICT-related laws, regulations, frameworks and standards to ensure coherence with digital economy frameworks and emerging technologies;
- Strengthening infrastructure-sharing regulations to reduce duplication and enhance resource efficiency;

- Digital inclusion policies targeting affordability, accessibility, and local content promotion;
- Reduce RoW fee to accelerate fixed broadband rollout;
- Cybersecurity, data-protection, and privacy regulations strengthened to build national digital trust;
- Policy harmonisation with regional (EAC, SADC) and continental (AU Digital Transformation Strategy) frameworks to support cross-border connectivity and digital trade;
- Fiscal and investment incentives to encourage private-sector participation in broadband infrastructure projects.

3.6.5 Implementation Roadmap

The implementation of the NIIM will follow a phased approach. The Plan will be executed in three progressive phases over ten years, designed to ensure coherence between infrastructure deployment, institutional readiness, and service expansion.

Phase I (2026-2028) - Foundational Deployment and Policy Enablers:

This phase prioritises the enhancing core broadband and digital infrastructure, including the expanding the NICTBB, deploying rural connectivity projects, expansion of fixed broadband (FTTx), Submarine cable and Data centre development, and operationalizing foundational regulatory and institutional mechanisms such as the NDIR, the one-stop digital permitting portal, and strengthened

inter-ministerial coordination through NBSC. This phase initiates key projects under Universal Access, Digital Governance, and Institutional Readiness focus areas. The estimated investment for this phase is **TZS 3,964 billion**.

Phase II (2029-2031) - Expansion, Integration and Technological Upgrading:

During this phase, implementation will scale up high-speed broadband coverage and advanced technologies, including nationwide 5G densification, regional metro-fibre build-outs, FTTx networks, expansion of community ICT hubs and GovNet connectivity to all MDAs and LGAs. Innovation infrastructure such as Tier III/IV data centres, sovereign cloud, and national HPC platforms will become operational. Cybersecurity and data-protection systems, including the National CSOC and PKI, will also reach maturity. The estimated investment for this phase is **TZS 4,392 billion**.

Phase III (2032-2036) - Consolidation, Optimisation and Regional Integration:

The final phase will focus on optimising performance, expanding 6G-readiness and cross-border fibre connectivity, and ensuring full operationalisation of innovation parks, IXPs, and CDN ecosystems. Green ICT transition initiatives and regional digital-corridor projects under the EAC, SADC, and AU frameworks will be consolidated. This phase will also institutionalise mechanisms for continuous monitoring, learning, and adaptation to sustain long-term resilience

and inclusivity. The estimated investment for this phase is **TZS 6,921 billion**. Table 6 gives a summary of the implementation phases.

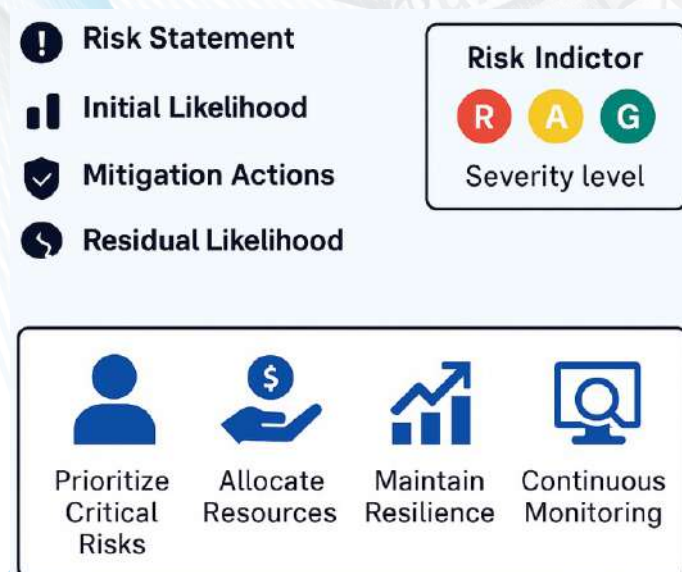
Table 6: Summary of Implementation Phases

Phase	Period	Key Priorities
Phase I - Foundation	2026-2028	Institutional setup; policy harmonisation; broadband expansion(backbone, 4G networks, FTTx, WiFi); rural mobile deployment; initial establishment of some data centres; baseline data and monitoring systems established.
Phase II - Acceleration	2029-2031	Major broadband expansion (backbone, metro, FTTx, WiFi); Submarine Cable resilience; Tier III/IV data centres operational; GovNet extension; national CSOC and PKI deployed; innovation parks launched.
Phase III - Consolidation and Regional Integration	2032-2036	Full broadband coverage (5G & FTTx); 6G readiness; cross-border fibre interconnection; national sovereign cloud; sustainability mainstreamed.

3.7 Risk Management & Resilience

The implementation of the NIIM will inevitably encounter a diverse set of risks arising from financial, technical, regulatory, operational, and socio-cultural factors. To ensure proactive management, a comprehensive risk registry provided in Annex 6, has been developed, covering cross-cutting /strategic and all projects across the six strategic focus areas of the Master Plan. Each risk entry identifies the

specific risk statement, its initial likelihood, the proposed mitigation actions, and the expected residual likelihood after mitigation to illustrate the severity level. This structured approach enables decision-makers to prioritize critical risks, allocate resources efficiently, and maintain resilience throughout the phased implementation of the Plan. The registry also provides a baseline for continuous monitoring and review, ensuring that risks are not only mitigated but actively managed in line with evolving sector dynamics and emerging technologies.



3.8 Monitoring, Evaluation, Learning and Adaption

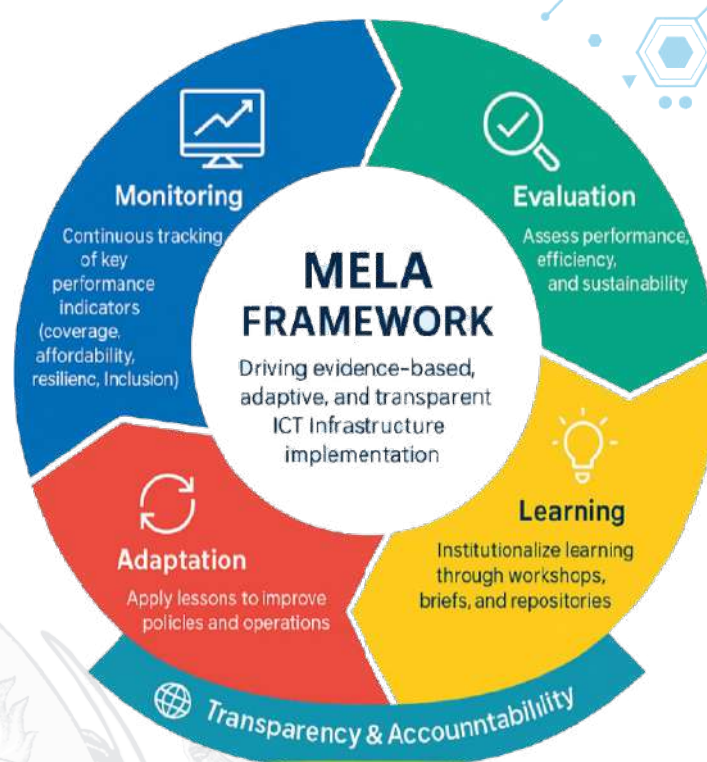
The successful delivery of the NIIM requires an integrated Monitoring, Evaluation, Learning and Adaptation (MELA) framework to track progress, ensure effective implementation, and promote adaptive learning across the six thematic focus areas. This framework provides a structured results-based approach that

combines continuous performance monitoring, evaluation, knowledge management, and institutional accountability to ensure efficient use of resources, inclusivity, and sustainability.

The MELA system will operate under the coordination of the NBSC and MCIT, in collaboration with other implementing agencies. It aligns with the national results-based management (RBM) system and supports the monitoring of SDGs 9 and 10.

Evaluation will be undertaken through structured short-term (2028), mid-term (2031), and end-term (2036) assessments to measure the NIIM's effectiveness, efficiency, sustainability, and transformative impact over time. The short-term evaluation (2028) will focus on foundational enablers, assessing progress in establishing core infrastructure, institutional readiness, and early policy reforms. The mid-term review (2031) will evaluate performance in scaling broadband coverage, integrating digital service, and developing the innovation ecosystem. The final evaluation (2036) complemented by annual independent audits to uphold transparency and inclusivity, will assess overall outcomes, long-term sustainability, and socio-economic transformation impacts.

To operationalize this framework, Annex 3 provides a detailed breakdown of MELA components - Monitoring, Evaluation, Learning, Adaptation, and Transparency & Accountability - including their objectives, key activities, outputs, and institutional roles. It serves as the implementation guide, ensuring that performance tracking, learning,



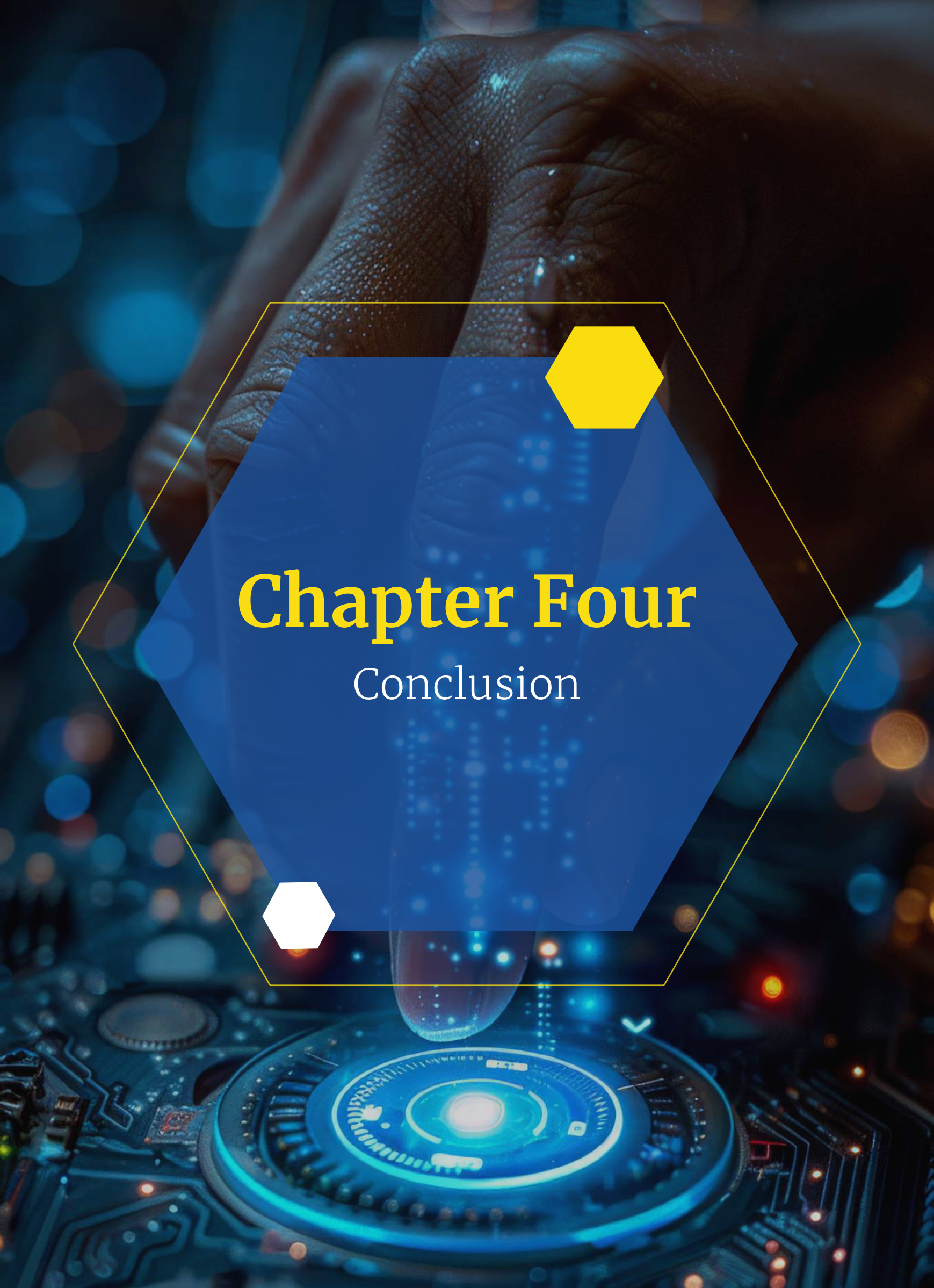
and adaptive management remain embedded throughout the NIIM execution cycle.

3.9 Expected Outcomes

The implementation of the NIIM is expected to deliver transformative national outcomes across six thematic focus areas. These outcomes are exhibited in Table 7 and they reflect Tanzania's desire to progress towards inclusive, secure, and sustainable digital infrastructure, driving socio-economic development and positioning the country as a regional digital hub.

Table 7: Expected Outcomes

Thematic Pillar	High-Level Outcomes by 2036
Universal Access and Digital Inclusion (Bridging the Digital Divide)	Over 100% of the population connected to affordable broadband services, with digital inclusion extended to all rural wards and underserved communities.
High-Speed Broadband Infrastructure	A national broadband infrastructure reaching 100 percent of districts and wards, ensuring nationwide fiber, 4G/5G/6G coverage and enhanced resilience through redundancy. FTTx reaching 60 percent penetration
Innovation and Emerging Technologies	A vibrant innovation ecosystem with 5,000+ technology-driven enterprises, enhanced research capacity, and a digital economy contributing significantly to GDP and job creation as described in Table 1.
Cybersecurity and Digital Trust	All MDAs and LGAs delivering secure and interoperable e-services through GovNet and the national digital trust infrastructure, supported by a fully operational cybersecurity framework. Citizens can access the government, financial and commercial services through the trust systems
Sustainability and Regional Integration	50% of ICT infrastructure powered by renewable or hybrid energy, and seamless digital integration across EAC, SADC, and AU corridors strengthening regional data exchange.
Institutional Strengthening and Governance	A coordinated, data-driven governance mechanism under the NBSC ensuring over 90% alignment of ICT infrastructure investments, policies, and monitoring frameworks.



Chapter Four

Conclusion

The United Republic of Tanzania is undergoing a fundamental transition towards a fully inclusive digital society. The National ICT Infrastructure Master Plan 2026–2036 (NIIM) provides a strategic roadmap for building a meaningful connected, innovative, inclusive, and resilient digital nation. It represents a coordinated national commitment to building the foundational digital infrastructure required for sustainable socio-economic transformation and long-term competitiveness. Aligned with National and international frameworks, this NIIM is expected to deliver a safe, satisfying, enriching, productive and affordable digital experience for all citizens and businesses; and generate significant socio-economic impact, including increase in the ICT sector's contribution to GDP from the current level of approximately 1.5% to 10% by 2036, creation of over 1 million direct and indirect jobs in the digital economy and increasing environment protection through usage of renewable energy sources.

This Plan requires a total investment of TZS 15,277 billion over the ten-year implementation period, structured in three distinct phases and the proposed financing structure comprises of PPPs and Private Sector (50%), UCSAF (10%), government sources (20%), and DFIs (20%). The Plan's core deliverables include, ubiquitous high-speed broadband connectivity at affordable prices, including in remote and underserved areas; robust, scalable, and secure national data centre infrastructure to support the growth of the digital economy; deployment of a national high-performance computing

(HPC) facility with a minimum capacity of 20 petaflops; fully resilient national and regional internet connectivity; and strengthened digital trust and national cybersecurity capabilities, including the establishment of a National Computer Security Incident Response Centre (CSOC).

The realization of the NIIM's ambitious targets requires sustained collaboration, mutual accountability, and alignment of efforts across all stakeholders. This includes:

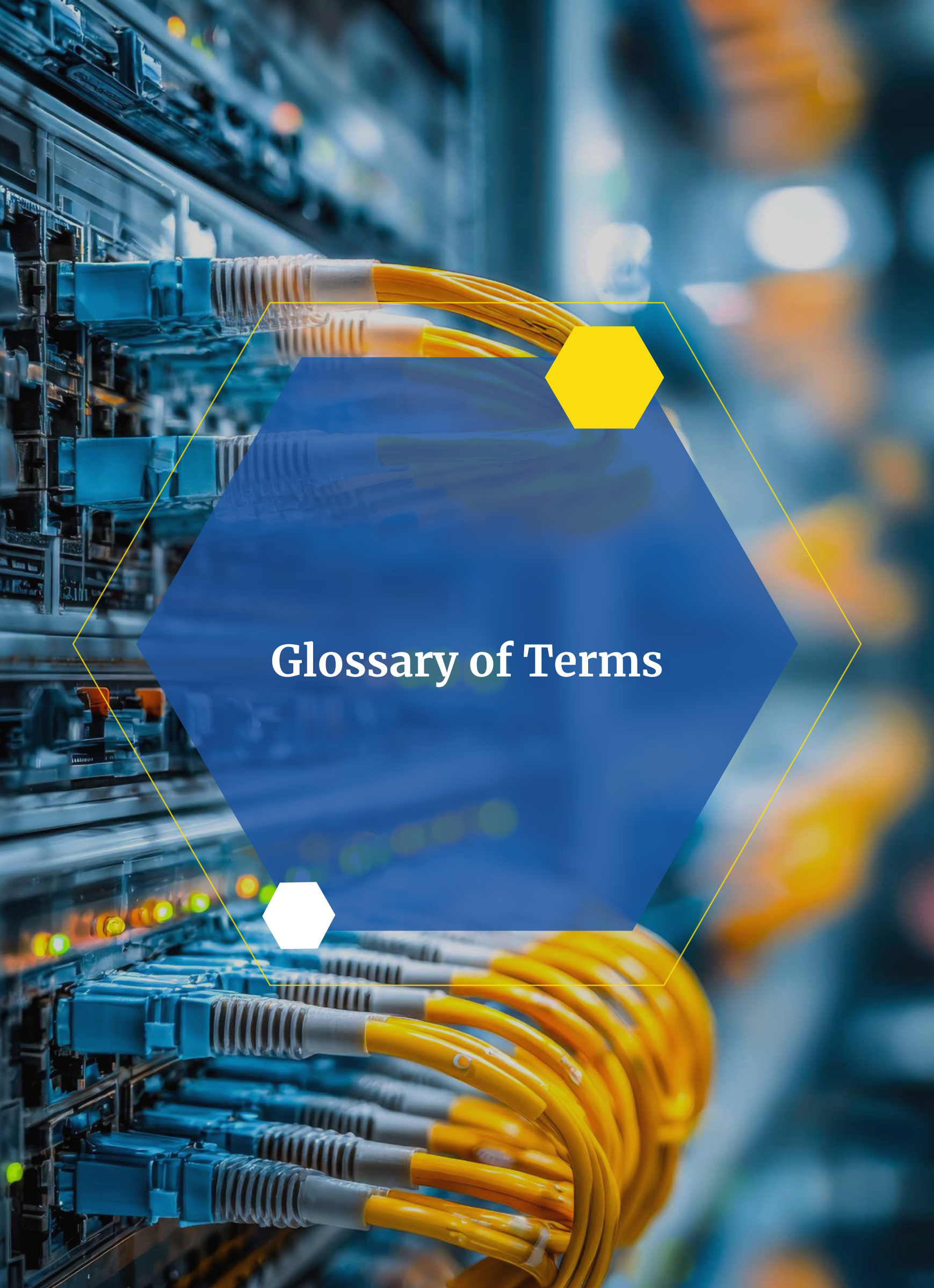
- i) Government Institutions led by MCIT: Provide strategic leadership and coordination through the revitalized NBSC; Drive policy and regulatory reforms, including the implementation of "Dig Once" policies and substantial reduction of rights-of-way (RoW) fees; and Promote systematic integration of ICT infrastructure with other public utilities to ensure resilient, future-proof national infrastructure. In addition, the Government shall establish and maintain a conducive, predictable, transparent, and stable regulatory environment that fosters sustainable investment in the sector.
- ii) Public and Private Sector (MNOs, ISPs, Tower Companies – Towercos, Technology Companies and other private investors): Make sustained investment in the expansion of fibre-optic networks, accelerated rollout of 4G/5G and preparation for 6G, WiFi networks, and development of innovation and digital economy hubs; and Adopt infrastructure sharing models and environmentally sustainable (green) practices to lower deployment costs, improve affordability, and accelerate digital inclusion.

iii) **Development Partners and International Financial Institutions:** Provide concessional financing, grants, and blended finance mechanisms to support capital-intensive connectivity projects; and Offer technical assistance, knowledge transfer, and capacity-building programmes to strengthen institutional capabilities and accelerate digital skills development.

iv) **Civil Society, Academia, and Communities:** Advocate for equitable and inclusive access to digital services, with particular attention to underserved populations; Actively participate in nationwide digital literacy

and skills development campaigns targeting at least 5 million citizens (with priority focus on women, youth, and persons with disabilities); and Contribute to independent monitoring, evaluation, and feedback mechanisms to ensure transparency, accountability, and responsiveness during implementation.

The National ICT Infrastructure Master Plan 2026–2036 provides a call to unite and build a sovereign, sustainable digital ecosystem. The time for action is now: commit resources, foster partnerships, and innovate boldly. Together, we will realize a prosperous, digitally empowered Tanzania by 2036.



Glossary of Terms

5G	The fifth generation of mobile network technology offering high-speed internet, low latency, and support for massive IoT connectivity.
6G	The sixth-generation wireless network under development, expected to provide ultra-low latency, terahertz speeds, AI-native networking, and advanced immersive applications.
Active Infrastructure	Network components requiring electrical power to operate, such as radios, switches, routers, and transmission equipment.
Backhaul	The intermediate network links that connect local access points (towers, base stations) to the core network or internet backbone.
Blockchain	A distributed ledger technology enabling secure, transparent, and tamper-resistant recording of transactions without central control.
Broadband	High-speed internet connectivity that supports always-on, high-capacity data transmission. The Minimum recommended broadband speed for users in Tanzania is 10 Mbps.
Cloud Computing	Delivery of computing services (storage, processing, applications) over the internet on-demand and at scale.
Content Delivery Network (CDN)	A geographically distributed network of servers that deliver digital content to users with improved speed and reliability.
Cross-Border	ICT infrastructure or data exchange systems spanning across national boundaries.
Cybercrime	Illegal activities conducted through digital systems, networks, or the internet.
Cybersecurity	Measures and technologies used to protect networks, systems, and data from unauthorized access, attacks, or damage.
Data centre	A secure facility hosting computing resources, servers, storage, and networking equipment for large-scale data processing and storage.
Dig Once	A policy or practice where civil works for ICT infrastructure (like trenching) are conducted once and shared by multiple operators to reduce cost and disruption.
Digital Divide	The socioeconomic gap between individuals or regions with access to digital technologies and those without.
Digital Economy	Economic activity driven by digital technologies, online services, data, and connectivity.
Digital Governance	Use of ICT to enhance government administration, service delivery, policy-making, and citizen engagement.
Digital Inclusion	Ensuring all individuals and groups access and meaningfully use digital technologies regardless of geography or socioeconomic status.
Digital Sovereignty	A state's authority to manage and regulate its digital infrastructure, data, and online ecosystem independently.
Edge Computing	Processing data closer to the source (e.g., device or local node) rather than sending it to distant data centres, reducing latency.
e-Government	Digital delivery of public services and administrative functions by government institutions.

e-waste	Electronic waste from discarded or obsolete ICT equipment such as computers, phones, and batteries.
Fiber Optic Cable	Cable that transmits data as pulses of light through glass or plastic fibers, enabling high-speed connectivity.
FTTx (Fiber to the x)	A family of fiber network deployments (FTTH, FTTB, FTTC) bringing fiber closer to homes, businesses, or street cabinets.
GovESB	Government Enterprise Service Bus—an integration framework enabling secure data exchange and interoperability across government systems.
GovNet	A secure government-wide IP network interconnecting ministries, agencies, and public institutions.
Green ICT	ICT solutions and practices that minimize environmental impact through energy efficiency and sustainability.
High Performance Computing (HPC)	Extremely powerful computing systems used for large-scale simulations, scientific research, and complex data processing.
ICT–Energy Synergy	Combined deployment of ICT and energy infrastructure to optimize power usage and support digital services efficiently.
Information and Communication Technologies (ICT)	Technologies used to process, transmit, store, and communicate information.
Internet Exchange Point (IXP)	A facility where multiple internet networks interconnect locally for faster, cheaper data exchange.
Internet of Things (IoT)	A network of interconnected devices that collect, exchange, and act on data autonomously.
IPv4	Fourth version of IP addressing using 32-bit address space (approx. 4.3 billion addresses), now nearly exhausted.
IPv6	Successor to IPv4 with a 128-bit address space, providing virtually unlimited address capacity for future devices.
Last Mile	The final segment of network delivery connecting service provider infrastructure to end users.
Latency	The time delay between data transmission and reception; lower latency improves real-time applications.
Local Content	Digital products, services, or applications produced within a country for domestic cultural, social, or economic use.
Mean Time to Repair (MTTR)	Average time required to diagnose and restore a failed network or infrastructure component.
Network Backbone	High-capacity central part of a network connecting major nodes, IXPs, and data transit routes.
Open Access	A neutral infrastructure-sharing model allowing multiple operators to use the same network without discrimination.
Operation and Maintenance (O&M)	Activities required to keep ICT infrastructure functional, including repairs, upgrades, and performance monitoring.
Optic Fibre Backbone Network	A long-distance, high-capacity fiber network forming the core of national connectivity infrastructure.
Passive Infrastructure	Physical infrastructure components not requiring power, such as ducts, towers, poles, rights-of-way, and fiber routes.

POPs (Points of Presence)	Network access points where users or operators connect to the internet, backbone, or service provider.
Power Computing	High-capacity computing resources optimized for intensive data processing and complex workloads.
Predictive Maintenance	Maintenance approach that uses sensor data and analytics to detect potential faults before failure occurs.
Quality of Service (QoS)	Performance standard measuring reliability, throughput, latency, and user experience on a network.
Quantum Communications	Communication technology that leverages quantum mechanics for ultra-secure data transmission.
Regional SPVs	Special Purpose Vehicles established at regional level to deploy, operate, or manage ICT infrastructure.
Resilience	The ability of ICT infrastructure to withstand disruptions and maintain service continuity.
Right-of-Way (RoW)	Legal permission to install infrastructure (e.g., fiber cables) along public or private land routes.
Service Level Agreement (SLA)	Contract defining service expectations, performance metrics, guarantees, penalties, and responsibilities.
Smart City	An urban system using ICT for efficient service delivery, traffic management, governance, and quality of life improvement.
Smart Corridors	Digitally enabled transport or logistics routes equipped with sensors, fiber, and real-time communication systems.
Sovereign Cloud	Cloud infrastructure operated under national legal jurisdiction, ensuring data residency and digital autonomy.
Submarine Cable	Undersea fiber cable forming core global internet connectivity between continents.
Trench Once	Infrastructure deployment principle aiming to dig and install utilities once, reducing costs and road disruptions.
Universal Access	Ensuring that all citizens—regardless of location—can access essential communication services.
Universal Access Policy	National framework guiding equitable access to ICT services across urban and rural populations.
Uptime	Percentage of time a service or network remains operational and accessible.
Zero-Rating	Practice where data usage for selected services or apps is free and not counted against user data limits.



The background features a city skyline with various buildings and a bridge spanning a body of water. A large, semi-transparent blue hexagon is centered over the image. Inside this hexagon, the word "Annexes" is written in white. The hexagon is decorated with a yellow hexagon at the top and a white hexagon at the bottom. The entire image is overlaid with a network of glowing blue and orange lines and dots, suggesting a data or communication network. Faint, semi-transparent numbers and bar charts are also visible in the background.

Annexes

Annex 1: Gaps and Strategic Interventions

Thematic Area	Key Gaps/Challenges	Strategic Interventions/Responses
Universal Access and Digital Inclusion - The Digital Divide	6% of population still unserved (mainly rural/ remote) - High Speed Internet users at 56% - Reliance on 2G rather than broadband - Limited backhaul capacity, dependence on microwave/ satellite links - High CAPEX for network (solar-hybrid, tower systems) and OPEX from diesel, RoW - Weak coordination between ICT and energy rollout	- Deploy public Wi-Fi in institutions and public places - Expand rural broadband with UCSAF-support and FWA/ satellite - Align ICT-energy rollout (MCIT, REA, TANESCO, UCSAF) for hybrid power - Update Policies and taxes to stimulate smart device penetration and network expansion; strengthen public reporting mechanisms including Women, PWDs, and the elderly - Enhance broadband service quality and next-generation mobile technologies in parallel with increased proportion of the population; improving network performance and capacity, while sustaining universal population coverage.
High-Speed Broadband Infrastructure	- Backbone underutilization (~47% of 2Tbps) - High lease prices, limited redundancy 30 district centres unconnected - Low metro-fiber penetration beyond major cities - Fixed broadband <1%, weak QoS enforcement, limited IXPs	- Densify and dual-path NICTBB backbone - Expand metro/access backhaul to districts and wards - Accelerate FTTx rollout with 'Trench Once' & shared ducts - Strengthen QoS enforcement and rationalize fiber pricing - Expand IXPs (Southern & Western Zones), attract CDNs - Develop 6G-ready plan integrating fiber, 5G, and edge computing

Innovation and Emerging Technologies	• Major ISPs and backbone networks remain largely IPv4-only, relying on NAT to manage address scarcity; • Government networks and public digital services have not widely implemented IPv6; • Few network engineers and ICT professionals have practical IPv6 deployment experience; • No mandatory IPv6 migration targets or enforcement mechanisms exist, and incentives for private operators to migrate are limited • Lack of national HPC and sovereign cloud • Limited data centre capacity (power/cooling) • Sparse edge infrastructure outside Dar • Weak innovation ecosystems and integration • Limited funding for startups/R&D	• Create National Innovation & advanced digital-skills programmes • Enforce and implement a National IPv6 Migration Strategy and Adoption Plan • Establish regulatory and technical frameworks to support IPv6 deployment across networks and services • Integrate IPv6 compliance requirements into public ICT procurement and infrastructure standards • Establish a National ICT Fund to support startups, innovation and other ICT project; launch AI, cloud, IPv6, and data-science training programs in partnership with universities and accelerators. • Establish national HPC & sovereign cloud platform (≥ 5 PFLOPS) • Upgrade data centres to Tier III/IV (20-40 MW) • Develop innovation parks (Dsm, Zanzibar, Coast (Bagamoyo, Kwala), Dodoma, Arusha, etc.) • Integrate e-Gov/payment platforms via GovESB/Jamii Exchange
Cybersecurity and Digital Trust	• Limited cybersecurity coordination • Lack of synchronized time service • Limited PKI rollout • Disconnected oversight systems	• Establish National CSOC and strengthen TZ-CERTs for protection of critical information infrastructure and other digital services • Deploy National Reference Time Source (NRTS) • Finalize digital signature and certificates rollout in all government institutions. Rollout PKI in financial and commercial institutions and citizens. • Develop unified digital governance dashboard

Sustainability and Regional Integration	• Diesel-dependent ICT power systems • Weak green ICT and e-waste management • Inadequate Internet Connectivity Resilience • Fragmented regional cooperation (EAC, SADC, AU) • Unaligned data protection and digital trade policies • High O&M failure rates: >35% of rural towers face >48-hour outages annually due to battery failure, vandalism, or fuel theft; • MTTR >72 hours in remote areas (vs. ≤8-hour global benchmark); • No national O&M framework; operators use reactive, fragmented models with >T FRS 80 Bn/year OPEX leakage; • Skills gap: fewer certified field technicians nationwide, Leading to long-time fault clearance. • Illegal e-waste dumping undermines green ICT.	• Retrofit ICT sites with solar/hybrid systems • Expand regional fiber corridors and Landing Stations • Promote PPPs/SPVs for cross-border backbones • Establish ICT-Regional Harmonisation Taskforce • Integrate CSOC with SADC & EAC CERTs • Develop open-access regional wholesale/CDN model • Align NIIM M&E with RISDP, EAC DTS, AU-DTS, SDG9 • Develop National O&M Policy & SLA Framework mandating 99.5% uptime, ≤8-hour MTTR, and predictive maintenance using IoT sensors; • Establish AI-powered National NOC co-located with CSOC for real-time monitoring and fault prediction; • Train and deploy 50,000 certified technicians via VETA/TVET/COSTECH partnerships with mobile repair units in all 26 regions; • Mandate local spare parts stockpiling and producer take-back for e-waste;
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Institutional Strengthening and Governance	• Fragmented, slow permitting & RoW approvals • Weak ‘Trench Once’ and sharing enforcement • Inactive NBSC • High sector taxes/fees & multiple levies • Poor data visibility and coordination	• Create One-Stop Digital Permitting System (MCIT, NEMC, PMO-RALG (LGAs), TANROADS/TARURA) • Develop National ICT Infrastructure Registry; • Strengthen NBSC for cross-sector coordination; • Enforce infrastructure-sharing with audits/incentives/penalties; • Align ICT-Energy-Transport rollout with TANESCO/REA/ZECO, TANROADS/ TARURA, TPDC, TRC; • Streamline taxes/fees & promote shared/green investments; • Establish unified monitoring dashboard; • Develop a dedicated Critical Digital Infrastructure Protection framework (Regulations) for identification, classification, protection, and oversight of such infrastructures.
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Annex 2: Estimated Public Wi-Fi Provisioning Sites

This annex provides an indicative estimation of potential public Wi-Fi provisioning points across Tanzania, based on the distribution of education, health, local government, market, and community facilities.

Region	Educational Facilities	Health Facilities	LGA/Ward/Shehia Office	Markets & Transport Terminals	Parks/Hubs/Libraries	Gov't Offices & MDAs	Total Estimated Wi-Fi Sites
Arusha	1300	300	500	250	60	50	2460
Dar es Salaam	1200	250	300	350	80	80	2260
Dodoma	1400	350	600	300	70	60	2780
Geita	1000	250	450	150	30	30	1910
Iringa	1000	250	500	200	40	40	2030
Kagera	1200	300	500	200	40	40	2280
Katavi	700	150	350	100	20	20	1340
Kigoma	1000	250	450	150	30	30	1910
Kilimanjaro	1200	300	500	200	40	50	2290
Lindi	800	200	400	120	20	20	1560
Manyara	1000	250	450	150	30	30	1910
Mara	1100	250	450	180	30	30	2040
Mbeya	1400	350	600	280	60	50	2740
Morogoro	1400	350	600	250	50	50	2700
Mtwara	900	220	420	130	25	25	1720
Mwanza	1600	400	700	350	70	50	3170

Region	Educational Facilities	Health Facilities	LGA/Ward/Shehia Office	Markets & Transport Terminals	Parks/Hubs/Libraries	Gov't Offices & MDAs	Total Estimated Wi-Fi Sites
Njombe	800	200	400	120	20	20	1560
Pwani	900	220	420	150	25	25	1740
Rukwa	800	200	400	120	20	20	1560
Ruvuma	1000	250	450	150	30	30	1910
Shinyanga	1200	300	500	200	40	30	2270
Simiyu	800	200	400	120	20	20	1560
Singida	900	250	450	150	30	30	1810
Songwe	800	200	400	100	20	20	1540
Tabora	1300	300	550	200	40	30	2420
Tanga	1200	300	550	250	50	40	2390
Zanzibar	850	210	400	140	30	100	1730
Total (National)	28,750	7,050	12,690	5,060	1,020	1,020	55,590

Source: NIIM 2026 Projections

Annex 3: NIIM MELA Framework

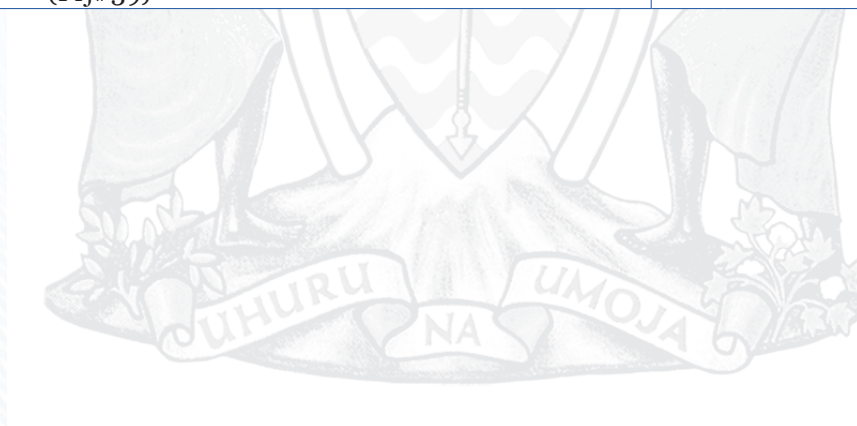
Component	Objective	Key Activities/Mechanisms	Expected Outputs & Outcomes	Implementation Notes
1. Monitoring	Continuously track progress of ICT infrastructure rollout, service quality, inclusion targets, and budget utilization across all NIIM strategic focus areas (e.g., Universal Access, High-Speed Broadband).	- Establish a digital M&E dashboard linked to institutional databases, GIS systems, and the integrated digital infrastructure monitoring dashboard. - Define and assign indicator ownership (e.g., % rural wards covered by broadband from Prj#3; backbone capacity in Tbps from Prj#16; % of ICT infrastructure powered by renewables from Prj#43), aligned with Annex 4 baselines and targets (e.g., 90% rural coverage by 2036). - Collect, validate, and analyze data quarterly using standardized templates, incorporating real-time inputs from stakeholders like UCSAF (Prj#3-4) and MNOs/ISPs. - Generate quarterly dashboards and annual performance reports for the NBSC, including budget tracking (e.g., short/medium/long-term expenditures)	- Real-time visualization of national ICT progress, including project-specific metrics (e.g., 5,590 Wi-Fi hotspots from Prj#1). - Early detection of implementation delays or bottlenecks, such as fiber deployment issues. - Improved accountability through indicator ownership and budget variance reports.	- Lead Institution: ICT Infrastructure NBSC. - Supporting Institutions: TCRA, ZICTIA, TTCL, UCSAF, ICTC, PMO-RALG, MNOs, ISPs. - Frequency: Dashboard updated quarterly. - Digital Tools: MELA dashboard integrated with e-Gov data platforms, GIS analytics, and Prj#64's monitoring system for seamless data flow.

Component	Objective	Key Activities/Mechanisms	Expected Outputs & Outcomes	Implementation Notes
2. Evaluation	Assess the effectiveness, efficiency, relevance, and sustainability of interventions, including cost-benefit analysis of budgeted projects.	- Conduct mid-term evaluation (2031) to assess trajectory toward 2031 targets (e.g., 100% rural broadband coverage from Prj#3; 20Tbps backbone from Prj#16) and alignment with short and medium-term budget (TZS 8,356 Bn). - Conduct final evaluation (2036) to measure outcomes against 2036 targets (e.g., 100% remote villages connected from Prj#4; 32Tbps backbone from Prj#8) and overall impact, including ROI on total TZS 15,277 Bn. - Apply mixed methods: quantitative (KPIs from Annex 4, cost-effectiveness ratios for high-budget items like Prj#20's TZS 2,250 Bn for 5G/6G) and qualitative (stakeholder consultations with MCIT, TCRA, private sector; reviews of institutional reforms from Prj#54-69).	- Evidence-based assessment of program impact, such as digital divide reduction and economic contributions. - Mid-course corrections and strategic recommendations, e.g., reallocating funds for underperforming areas like satellite deployment (Prj#4). - Evaluation reports published and disseminated, highlighting successes like innovation parks (Prj#28, TZS 1,826 Bn).	- Lead Institution: MCIT through the NBSC. - Supporting Partners: NBS, academic institutions, development partners (e.g., WB, AfDB from Prj#4). - Frequency: Mid-term (2031) and Final (2036). - Tools: Digital evaluation templates and analytics modules within the MELA system, incorporating budget data from Annex 6.

Component	Objective	Key Activities/Mechanisms	Expected Outputs & Outcomes	Implementation Notes
3. Learning	Capture and institutionalize lessons from implementation to foster continuous improvement, with emphasis on cross-focus area insights.	• Hold annual reflection and learning workshops with all implementing agencies, focusing on lessons from key projects (e.g., 5G rollout challenges from Prj#20; IPv6 migration from Prj#30-32). • Produce knowledge briefs, case studies, and best-practice documentation on topics like infrastructure sharing (Prj#61) and solar-hybrid upgrades (Prj#43). • Establish an open-access digital knowledge hub for sharing data, reports, and innovations, linked to outputs from innovation parks (Prj#28) and research collaborations. • Promote peer-learning across ministries, regulators, private sector, and academia, including international benchmarks for HPC/cloud (Prj#27).	• Institutional learning culture established, e.g., documented best practices for scaling rural towers (Prj#3). • Enhanced evidence-based policy formulation, informing updates to NIIM strategies. • Increased cross-sector collaboration and innovation, such as applying cybersecurity lessons (Prj#37) to all strategic focus areas.	• Lead Institution: ICTC in coordination with MCIT. • Supporting Partners: COSTECH, universities, development partners • Frequency: Annual learning cycles and thematic briefs. • Tools: Knowledge hub linked to open data portal and document repository, integrated with Prj#64's dashboard for data-driven insights.

Component	Objective	Key Activities/Mechanisms	Expected Outputs & Outcomes	Implementation Notes
4. Adaptation	Enable agile adjustments to policies, plans, and operations in response to monitoring and learning findings, addressing emerging risks like technological obsolescence.	- Integrate a Red-Amber-Green (RAG) alert system and adaptive action tracker in the dashboard (Prj#64), flagging deviations from Annex 4 targets (e.g., <100% ward fiber coverage by 2036 from Prj#16). - Review adaptive actions during annual NBSC sessions, incorporating feedback from evaluations and learning workshops. - Update policies, plans, and resource allocations based on lessons and changing contexts (e.g., accelerating 5G/6G from Prj#20; enhancing cybersecurity via Prj#37; aligning with regional plans in Prj#50). - Institutionalize flexible policy review cycles, including budget reallocations across short/medium/long-term phases.	- Timely corrective actions implemented, e.g., reallocating funds for delayed projects like metro fiber (Prj#19). - Increased program agility and responsiveness to global trends (e.g., AI integration in HPC from Prj#27). - Improved resilience of ICT investments, ensuring sustainability amid climate risks (Prj#66).	- Lead Institution: MCIT with NBSC oversight. - Supporting Institutions: PMO-RALG, TCRA, TTCL, REA, MNOs, ISPs. - Frequency: Annual adaptation reviews; real-time updates triggered by dashboard alerts. - Tools: Adaptive Action Tracker integrated into the MELA platform, linked to Annex 5 budgets and Prj#64 analytics.

Component	Objective	Key Activities/Mechanisms	Expected Outputs & Outcomes	Implementation Notes
5. Transparency & Public Accountability	Promote openness, trust, and stakeholder engagement in ICT sector progress tracking, including public access to non-sensitive budget and performance data.	- Publish quarterly public updates and annual MELA reports, detailing progress on Annex 5 projects (e.g., budget utilization for Prj#1's Wi-Fi hotspots). - Release non-sensitive data as open datasets for civic, media, and academic use, such as coverage maps from Prj#3 and IXP metrics from Prj#21-23. - Engage civil society in dissemination and oversight, including feedback mechanisms on initiatives like community ICT hubs (Prj#2). - Ensure compliance with the Personal Data Protection Act (PDPA) 2022, particularly for data from GovNet (Prj#35) and NPFI (Prj#39)	- Enhanced transparency and public trust through accessible reports on NIIM achievements. - Greater citizen participation and data-driven advocacy, e.g., on digital divide issues from Universal Access projects. - Strengthened accountability mechanisms, with public scrutiny of budget efficiency (e.g., TZS 2,250 Bn for 5G in Prj#20)	- Lead Institution: MCIT and ICTC. - Supporting Partners: e-Government Authority (eGA), civil society, media. - Frequency: Quarterly and annual reporting cycles. - Tools: Open-data portal, visualization dashboard, and interactive web publication tools, compliant with PDPA



Annex 4: Indicators and Targets

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
Universal Access and Digital Inclusion (Bridging the Digital Divide)	Deploy 5,590 safe & trusted public Wi-Fi hotspots (Prj#1)	Number of operational secure public Wi-Fi hotspots	#	<50 pilot sites	1,050	2,500	5,590
	Establish and equip trusted community ICT hubs (Prj#2)	Number of community ICT hubs operationalized	#	120	250	500	1,000
	Expand UCSAF-supported rural towers and broadband population coverage (Prj#3)	% of population covered by mobile broadband service (minimum 4G)	%	94%	98%	100%	100%
	Deploy Broadband satellite(LEO/ GEO) and fixed wireless access for remote and hard to reach areas (Prj#4)	% of remote villages and hard to reach areas (unserved by terrestrial networks) connected	%	<20%	50%	70%	90%
	Launch National Digital Inclusion & Literacy Campaign (Prj#5)	Number of citizens reached via campaign (women, youth, PWDs, elderly)	Million people	0	2.5 M	5 M	5 M (sustained)

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Subsidize affordable smartphones and low-cost data bundles (Prj#6)	Number of subsidized smartphones distributed	#	0	1 M	2 M	2 M (program closed)
	Develop Swahili & accessible digital content ecosystem (Prj#7)	Number of WCAG-compliant, Swahili-enabled apps/services (e-learning, e-health, gov)	#	<10	50+	200+	500+
	Align ICT-Energy rollout under joint framework; deploy shared renewable power systems (Prj#8)	% of multi-tenant rural towers powered by shared hybrid systems	%	<15%	30%	70%	90%
	Upgrade backhaul from microwave to fiber/high-capacity wireless (Prj#9)	% of rural towers with fiber or high-capacity wireless backhaul	%	<20%	50%	80%	90%
	Update Policy and reporting supporting Universal Access (Prj#10)	Policies and taxes reviewed to stimulate smart device penetration and network expansion; strengthen public reporting to include Women, PWDs, and the elderly.	Yes/No	No	Yes	Yes	Yes
	Connect educational and training facilities (Prj#11)	% of education facilities connected to broadband	%	<10%	30%	60%	90%

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Connect health services delivery facilities (Prj#12)	% of health facilities connected to broadband	%	<10%	30%	60%	90%
	Equip educational facilities with computer labs (Prj#13)	% of schools with functional computer labs (devices + maintenance)	%	<10%	30%	60%	90%
High-Speed Broadband Infrastructure	Reform open-access PPP framework (Prj#14)	Private investment mobilized via PPPs	TZS Bn	0	0.5	1.5	2.5–3.0
	Review & rationalize wholesale tariffs (Prj#15)	Average wholesale dark fiber/backbone capacity tariff reduction	% reduction from baseline	0%	30%	50%	<50% sustained
	Extend and harden core NICTBB fiber with redundant routes (Prj#16)	% of districts connected to NICTBB with dual-path redundancy	%	90%	100%	100%	100%
	Expand NICTBB access backhaul fiber (about 45,000 km) footprint to rural areas (Prj#17)	% of priority wards connected by fiber backhaul	%	25%	40%	50%	80%
	Upgrade core backbone capacity (Prj#18)	Total NICTBB core capacity	Tbps	2.5Tbps	10Tbps	20Tbps	32Tbps

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Deploy metro fiber + FTTx in 50+ towns (Prj#19)	% of premises (govt, health, education, homes) connected to the internet via FTTx/wireless	%	Govt: 65%, Homes: <1%	Govt: 80%, Homes: 30%	Govt: 90%, Homes: 40%	Govt: 100%, Homes: 60%
	Upgrade to 5G nationally and develop 6G-readiness roadmap (Prj#20)	% of population covered by 5G	%	30%	40%	80%	100%
		6G-readiness roadmap published	Yes/No	No	No	Yes	Yes
	Subsidize IXP operation costs (Prj#21)	Average ISP peering cost reduction	% reduction	0%	30%	50%	80%
	Modernize existing IXPs (Prj#22)	Number of IXPs modernized (capacity, security, automation)	#	7	7 (all upgraded)	7	9
	Establish two new IXPs in underserved regions (Prj#23)	Number of new IXPs operational	#	0	0	1	2
	Attract major CDNs and content providers to peer locally (Prj#24)	Number of major CDNs (e.g., Google, Netflix, Akamai) peering locally	#	2	3	5	7
	Enforce QoS standards via real-time monitoring (Prj#25)	% of operators meeting QoS benchmarks (monitored via public dashboard)	%	<50%	70%	80%	95%
Innovation and Emerging Technologies	Upgrade primary data centres to Tier III/IV (Prj#26)	Number of Tier III/IV data centres operational	#	4	6	7	8

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Establish national HPC cloud and sovereign cloud (Prj#27)	HPC capacity	PFLOPS	0	0	5	20
		Sovereign cloud storage	PB	0	0	100	200
	Build 7 innovation & tech parks (Prj#28)	Number of operational innovation parks	#	0	2	4	7
	Establish 20 distributed edge data centres (Prj#29)	Number of edge data centres operational	#	0	5	15	20
	Enforce and implement National IPv6 Migration Plan (Prj#30)	National IPv6 Migration Plan launched and tracked	Yes/No	No	Yes	Yes	Yes
	Integrate IPv6 compliance into public ICT procurement (Prj#31)	% of public ICT tenders requiring IPv6 compliance	%	0%	100%	100%	100%
	Establish regulatory and technical frameworks for IPv6 (Prj#32)	IPv6 regulatory framework operational	Yes/No	No	Yes	Yes	Yes
	Launch National ICT Fund (Prj#33)	Total funding deployed to startups, Innovation and other ICT Projects	TZS Bn	0	5	10	15
	Train 10,000+ professionals in AI, cloud, IPv6, data science (Prj#34)	Number of certified professionals trained	#	<500	3,000	5,000	10,000 (sustained)

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
Cybersecurity and Digital Trust	Expand coverage of GovNet to all LGAs and MDAs with multi-site failover for government systems (Prj#35)	% of MDAs and LGAs connected to GovNet	%	50%	80%	100%	100%
	Enhance GovESB, Jamii Exchange and ZanExchange for interoperable digital platforms (Prj#36)	% of public services interoperable via GovESB, Jamii Exchange and ZanExchange	%	70%	80%	90%	100%
	Establish National CSOC and integrate TZ-CERTs (Prj#37)	National CSOC operational	Yes/No	No	Yes	Yes	Yes
		Number of protected CII managed by CSOC	% Published CII managed	0%	100%	100%	100%
	Integrate sectoral CSIRTs with TZ-CERT (Prj#38)	% of critical sectors with integrated CSIRTs in CSOC	%	0%	100%	100%	100%
	Strengthen NPki, automate certificate issuance (Prj#39)	% of e-services using automated NPki certificates	%	35%	45%	60%	100%
	Deploy National Reference Time System (National Clock) (Prj#40)	System operational and synchronized across ICT networks	Yes/No	No	Yes	Yes	Yes

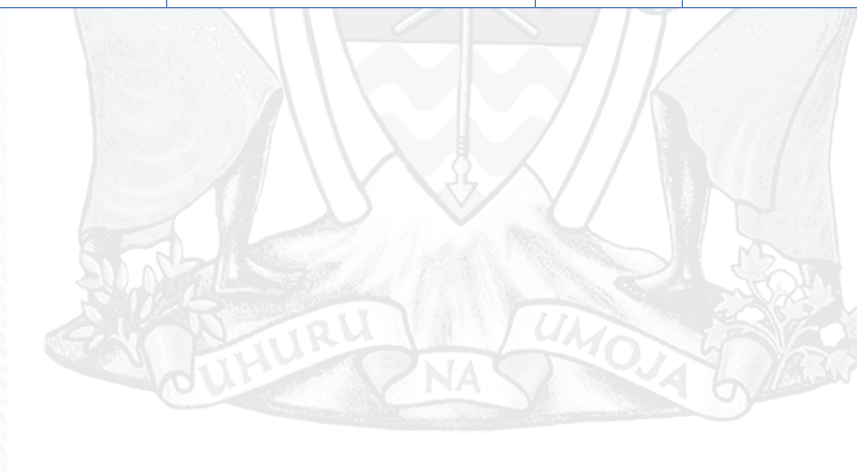
Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Strengthen PDPA implementation (Prj#41)	PDPA fully enforced across all MDAs	Yes/No	No	Yes	Yes	Yes
	Unified digital governance dashboard (Prj#42)	Dashboard live and integrated (MCIT-TCRA-eGA-PDPC)	Yes/No	No	Yes	Yes	Yes
	Establish a National AI Ethics and Assurance Taskforce	Taskforce legally established and operational	Yes/No	No	Yes	Yes (fully functional)	Yes (Institutionalized)
Sustainability and Regional Integration	Upgrade towers/data centres/NICTBB sites with solar-hybrid systems (Prj#43)	% of ICT infrastructure powered by renewables	%	~10%	15%	25%	50%
	Join new subsea cable landings and complete terrestrial links (Prj#44)	Number of subsea cable landings	#	4	5	6	8
		Number of cross-border terrestrial fiber links connected to submarine cable in other country for internet resilience	#	1	3	4	5
	E-waste systems and green procurement (Prj#45)	E-waste management framework adopted	Yes/No	No	Yes	Yes	Yes

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Develop resilient regional fiber corridors (Prj#46)	Number of operational regional fiber corridors (East-West/South/North)	#	0	1	3	5
	Align spectrum/ RoW/ data/ cyber management across the region (EAC and SADC) (Prj#47)	Spectrum/RoW/data/ cyber management	Yes/No	Partial	Yes	Yes	Yes
	Integrate CSOC with SADC/EAC CERTs (Prj#48)	Full integration with regional CERTs	Yes/No	No	MoU signed	Yes	Yes
	Establish Regional SPVs/ PPPs (Prj#49)	Number of regional SPVs/ PPPs operational	#	0	1	3	5
	Align NIIM M&E with SADC RISDP/EAC M&E & AU/UN SDGs (Prj#50)	NIIM alignment completed	Yes/No	No	Yes	Yes	Yes
	Prj#51: National O&M Framework	% of critical infrastructure under SLA with ≥99.5% uptime	%	<40%	70%	90%	99%
		Average MTTR for rural towers	Hours	>72	≤24	≤12	≤8
	Prj#52: National NOC	NOC operational with AI predictive maintenance	Yes/ No	No	Yes	Yes	Yes

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
		% of faults auto-detected before failure	%	0%	30%	70%	90%
	Prj#53: Technician Program	Number of certified O&M technicians deployed	#	<10,000	20,000	35,000	50,000
Institutional Strengthening and Governance	Strengthened NBSC (Prj#54)	% of ICT projects coordinated via NBSC	%	10%	40%	60%	100%
	Develop registration database for gazetted Critical Information Infrastructure (Prj#55)	Database for gazetted Critical Information Infrastructure developed and Critical Information Infrastructure are registered and protected	Yes/No	No	Yes	Yes	Yes
	Develop & operationalize one-stop digital permitting platform (Prj#56)	Average permit approval time	Days	>90	≤30	≤14	≤7
	Develop National Digital Infrastructure Registry - NDIR (Prj#57)	Registry operational and updated	Status	Not available	Operational	Updated quarterly	Real-time
	Review and rationalize right of way and other operation fees for ICT critical infrastructure (Prj#58)	RoW and other operation cost reforms implemented	#	0	3	3	3

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Review and reduce RoW fees (Prj#59)	Average RoW fee reduction	% reduction from baseline	0%	30%	50%	70%
	Establish RoW Digital Infrastructure corridor and guideline for fiber infrastructure maintenance and relocations along roads ROWs (Prj#60)	RoW Digital Infrastructure corridor and guideline for fiber infrastructure maintenance and relocations established	Yes/No	No	Yes	Yes	Yes
	Update Infrastructure Sharing Regulations (Prj#61)	Infrastructure sharing rate among operators	%	25%	50%	80%	90%
	Streamline Licensing & RoW Regulations – “Deemed Approval” & “Dig Once” (Prj#62)	“Deemed Approval” and “Dig Once” legally enforced	Yes/No	No	Yes	Yes	Yes
	Integrate ICT-utility-transport infrastructure planning (Prj#63)	Number of joint infrastructure projects executed	#	0	5	15	30
	Establish integrated digital infrastructure monitoring dashboard (Prj#64)	Dashboard operational and integrated	Yes/No	No	Yes	Yes	Yes

Focus Area	Action/Project	Key Indicator	Unit	Baseline (2025)	2028 Target	2031 Target	2036 Target
	Consolidate unified National ICT Infrastructure Code (Prj#65)	Code published and adopted	Yes/No	No	Yes	Yes	Yes
	Update Environmental and Green ICT Regulations (Prj#66)	Simplified EIA and e-waste framework enforced	Yes/No	No	Yes	Yes	Yes
	Strengthen Regulatory compliance (Prj#67)	Number of regulatory and technical staff trained annually	# per year	<50	100	200+	200+
	Update/Develop TNBS 2027-2032 and Cloud Regulation Framework (Prj#68)	TNBS and Cloud Regulation Framework published	Yes / No	No	Yes	Yes	Yes



Annex 5: Detailed Estimated Budget

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
1	Universal Access and Digital Inclusion (Bridging the Digital Divide)	1	Deploy 5,590 safe & trusted public Wi-Fi hotspots at education & health facilities, LGAs (wards), transport hubs, and market centres (Ref. Annex 2)	MCIT, UCSAF, REA, TCRA, TANESCO, ZECO, LGAs, MNOs, ISPs, Dev Partners	2026-2036	110	165	275	550
		2	Establish and equip 1,000+ community ICT hubs with shared devices, solar power, and onsite digital literacy trainers for training, e-services, and device access	MCIT, UCSAF, REA, TCRA, TANESCO, ZECO, LGAs, MNOs, ISPs, ICTC, NGOs	2026-2036	70	30	70	170
		3	Expand UCSAF-supported rural towers and broadband coverage to 100% population coverage (Ref. Annex 7.5)	MCIT, UCSAF, REA, TCRA, TANESCO, ZECO, MNOs, ISPs	2026-2036	480	720	397	1,597

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		4	Deploy Broadband satellite (LEO/GEO) + Fixed Wireless Access (FWA) for remote and hard to reach areas with backhaul integration to NICTBB	MCIT, UCSAF, TCRA, MNOs, ISPs, Other Licensed Satellite Service Providers	2026-2036	10	15	25	50
		5	Launch National Digital Inclusion & Literacy Campaign targeting 5M citizens (women, youth, PWDs, elderly) via mobile units, schools, and community ambassadors	MCIT, MoEST, ICTC, PMO RALG, UCSAF, NGOs, MNOs, Media, Dev Partners	2026-2031	10	10	-	20
		6	Subsidize affordable smartphones (<TZS 100,000) and low-cost data bundles (Entry-level broadband subscription price≤2% of monthly GNI per capita); zero-rate education, health, and gov services	MCIT, UCSAF, TCRA, MNOs, ISPs, MoF, Device Manufacturers, Dev Partners	2026-2036	5	5	5	15

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		7	Develop Swahili & accessible digital content ecosystem (WCAG-compliant apps, voice services, e-learning, e-health) via National Content Taskforce	MCIT, ICTC, COSTECH, eGA, eGAz, MoEST, MoH, Private Developers, Dev Partners	2026-2031	5	5	-	10
		8	Align ICT-Energy rollout under joint MCIT-REA-TANESCO-UCSAF framework; deploy shared renewable power systems for multi-tenant rural towers	MCIT, REA, TANESCO, UCSAF, MNOs, Tower Telecom Service Providers	2026-2036	20	20	10	50
		9	Upgrade backhaul from microwave to fiber/high-capacity wireless; integrate rural nodes preferably via open-access neutral models into NICTBB	MNOs, UCSAF, TTCL, ZICTIA	2026-2036	10	10	5	25

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		10	Revise Policies and taxes to stimulate smart device penetration and network expansion; strengthen public reporting mechanisms including Women, PWDs, and the elderly	MCIT, ICTC, TCRA, MoF, UCSAF, PMO-RALG, MoCDGWSG	2026-2028	0.1	-	-	0.1
		11	Connect educational and training facilities to broadband internet	MCIT, MoEST, PMO-RALG, UCSAF, Private Sector	2026-2036	196	294	490	980
		12	Connect health services delivery facilities (hospitals, health centres, clinics & dispensaries) with broadband internet (Target 7,050 sites)	MCIT, MoH, TTCL, PMO-RALG, MNOs, ISPs, UCSAF	2026-2036	138	207	345	690
		13	Equip educational & training facilities with computer labs (devices and offline/online educational content); ensure maintenance/support (Target 24,976 sites)	MCIT, MoEST, PMO-RALG, UCSAF, Private Sector	2026-2036	300	300	400	1,000

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
2	High-Speed Broadband Infrastructure	14	Reform open-access PPP framework for NICTBB to attract more digital infrastructure investment	MCIT, TTCL	2026-2028	0.1	-	-	0.1
		15	Review & Rationalize wholesale tariffs for dark fiber & capacity to competitive market rates	MCIT, TCRA	2026-2028	0.1	-	-	0.1
		16	Extend & harden NICTBB with dual-path redundancy to all regions/districts including cross-border backups (Ref. Annex 7.2)	MCIT, TTCL, ZICTIA, TANESCO, ZECO, TRC, TAZARA, MNOs	2026-2036	89	133	222	444
		17	Expand access backhaul fiber (about 45,000 km) to priority wards (Ref. Annex 7.1)	MCIT, MNOs, ISPs, TCRA, UCSAF	2026-2036	28	43	71	142
		18	Upgrade NICTBB core capacity to ≥10Tbps (2030/31) -> ≥32Tbps (2036)	MCIT, TTCL, ZICTIA	2026-2036	10	15	25	50

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		19	Deploy metro fiber + FTTx in 50+ towns under Trench Once & shared ducts and Poles	TCRA, MNOs, ISPs, LGAs	2026-2036	950	316	946	2212
		20	Upgrade to 5G nationally; develop 6G-readiness roadmap with fiber & edge integration	MCIT, TCRA, MNOs, UCSAF	2026-2036	300	450	1,500	2250
		21	Subsidize IXP operation costs; eliminate barriers for ISPs	MCIT, TCRA, TISPA	2026-2036	1	1.5	2.5	5
		22	Modernize existing IXPs (capacity, security, automation)	MCIT, TISPA, UCSAF, MNOs, Dev Partners	2026-2031	1.4	2.1	-	3.5
		23	Establish 2 new regional IXPs (Southern & Western Zones)	MCIT, TISPA, TCRA, MNOs, ISPs	2032-2036	-	-	2	2
		24	Attract more CDNs & hyperscalers (Google, Meta, Netflix) to host locally	MCIT, TISPA, TCRA, MNOs, ISPs, Private Sector	2026-2036	0.84	1.26	0.6	2.7
		25	Enforce QoS standards via real-time monitoring and public dashboards.	TCRA, MNOs, TCRA-CCC, Consumer Groups	2026-2028	0.5	-	-	0.5

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
3	Innovation and Emerging Technologies	26	Upgrade primary data centres to Tier III/IV (20-40 MW) and regional edge DC nodes; Establish minimum new four Tier III/IV Data Centre.	MCIT, NIDC, ZICTIA, TCRA, Private Sector, Dev Partners	2026-2036	450	250	400	1,100
		27	Establish national HPC (≥ 5 PFLOPS $\rightarrow$ 20 PFLOPS) and sovereign cloud (100 PB)	MCIT, MoEST, NIDC, COSTECH, Private Sector	2029-2036	-	234	391	625
		28	Build 7 innovation & tech parks (Dsm, Zanzibar, Coast (Bagamoyo/ Kwala), Arusha, Dodoma, Mwanza, Mbeya) with R&D labs, testbeds, incubators	MCIT, ICTC, COSTECH, Private Sector	2026-2036	343	648	835	1,826

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		29	Establish 20 distributed edge data centres across 8 zones – Zanzibar, Dodoma, Arusha, Mwanza, Mbeya, Mtwara, Kigoma, and Tanga (at least 2-3 per zone) to enable low-latency processing, local content caching, and sovereign data handling for AI, IoT, and digital public services	MCIT, NIDC, ZICTIA, MNOs, ISPs, Private Sector	2026-2036	20	30	20	70
		30	Enforce and implement a National IPv6 Migration Strategy and Adoption Plan (dual-stack -> full adoption). Mandate IPv6 by 2028.	MCIT, TCRA, eGA, TISPA, MNOs, ISPs, and All members of AFRINIC	2026-2028	0.1	-	-	0.1
		31	Integrate IPv6 compliance requirements into public ICT procurement and infrastructure standards	MCIT, TCRA, eGA, eGAz, PPRA, TBS	2026-2028	0.1	-	-	0.1

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		32	Establish regulatory and technical frameworks to support IPv6 deployment across networks and services	MCIT, TCRA	2026-2028	0.1	-	-	0.1
		33	Launch National ICT Fund; support startups, innovation and other ICT projects	MCIT, ICTC, Private Sector, Dev Partners	2026-2031	5	10	-	15
		34	Train 10,000+ professionals in AI, cloud, IPv6, data science	MCIT, ICTC, MoEST, HLIs UCSAF, TCRA, Dev Partners, Private Sector	2026-2036	10	15	25	50
4	Cybersecurity and Digital Trust	35	Expand coverage of GovNet to all LGAs and MDAs facilities/service delivery points (Target 2,721 offices) with multi-site failover for government systems.	MCIT, eGA, TTCL (NICTBB), MDAs, LGAs	2026-2036	60	90	50	200
		36	Enhance GovESB, Jamii Exchange and ZanExchange for interoperable digital platforms	MCIT, eGA, eGAz, MDAs, LGAs	2026-2036	30	40	30	100

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		37	Establish National CSOC and integrate with TZ - CERTs to improve national early warning and response	MCIT, TCRA	2026-2031	110	40	-	150
		38	Integrated sectoral CSIRTs with TZ-CERT; audits/exercises	MCIT, TCRA, Sector Ministries/ Institutions	2026-2031	5	5	-	10
		39	Strengthen NPKI, and rollout to Government entities, Financial Institutions, Commercial Institutions and Citizens	MCIT, ICTC, NIDA, TCRA, Bank of Tanzania, eGA, eGAz, PDPC	2026-2031	20	30	-	50
		40	Deploy a National Reference Time System (National Clock) integrated with the ICT infrastructure network to provide precise, traceable time synchronization for data centres, telecom networks, and cybersecurity systems	MCIT, TCRA, TTCL, ZICTIA, eGA, MNOs/ ISPs	2026-2031	5	5	-	10

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		41	Strengthen PDPA implementation; harmonize sectoral frameworks; Including Establishment of a Data Sharing Governance Framework and a National Consent Management Framework; Ensuring Adherence to the National Privacy by Design and by Default Standards for ICT Infrastructure	MCIT, PDPC, TCRA, MDAs, LGAs	2026-2031	1	1	-	2
		42	Establish a National AI Ethics and Assurance Taskforce	MCIT, PDPC, TCRA, eGA, ICTC	2026 - 2031	2	1	-	3
5	Sustainability and Regional Integration	43	Upgrade towers/ data centres/NICTBB remote sites with solar-hybrid systems	MCIT, TTCL, TCRA, MNOs/ ISPs, Tower Service Providers	2026-2036	20	30	50	100

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		44	Develop four (4) new subsea cable landings (Dar es Salaam, Zanzibar, Mtwara/ Tanga); complete East -> West/South/North terrestrial links; align with EAC/SADC/AU master plans	MCIT, TTCL, ZICTIA, TCRA, ISPs/MNOs, Subsea cable consortia, Dev Partners	2026-2036	100	150	250	500
		45	E-waste systems and green procurement as per EAC/SADC	MCIT, NEMC, TCRA, Private Sector	2026-2031	1	1	-	2
		46	Develop resilient regional fiber corridors (East-West/ South/North); integrate with One Africa Network/ Smart Corridors	MCIT, TTCL, MNOs, ISPs, Regional Partners (EAC/ SADC)	2026-2036	20	30	50	100
		47	Alignment of spectrum/RoW/data/ cyber operation and management across the region (EAC and SADC)	MCIT, TCRA, MFAEAC, EAC/SADC Secretariats	2026-2028	0.5	-	-	0.5

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		48	Integrate CSOC with SADC/EAC CERTs for joint response/ intelligence	MCIT, TCRA, SADC, EAC	2026-2031	0.5	0.5	-	1
		49	Establish Regional SPVs/PPPs to co-finance in cross-border fiber, subsea cable landings, and open-access wholesale/CDN hosting platforms, positioning Tanzania as the EAC/SADC digital gateway with 70% regional traffic localized by 2036	MCIT, MNOs, ISPs, Dev Partners, Private Sector	2026-2036	5	10	15	30
		50	Align NIIM M&E with SADC RISDP/EAC M&E & AU/UN SDGs	MCIT, TCRA, ICTC, Regional & International Bodies	2026-2028	0.1	-	-	0.1
		51	Develop and operationalize National O&M Policy & SLA Framework mandating 99.5% uptime, predictive maintenance, and performance-based contracts for all critical digital infrastructure	MCIT, TCRA, MNOs, ISPs	2026-2028	2.5	-	-	2.5

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		52	Ensure Network Operation Centres (NOCs) are equipped with AI-driven monitoring, fault prediction, and integration with CSOC for real-time infrastructure management	MNO, ISPs, TCRA	2029-2031	-	18	-	18
		53	Launch National O&M Technician Training & Deployment Program to certify and deploy skilled personnel for routine maintenance, repairs, and upgrades across rural and urban sites	MCIT, ERB, VETA, TVET, NACTIVET, ICTC, TCRA, MNOs, ISPs	2026-2036	4	4	4	12.0 (recurring)
6	Institutional Strengthening and Governance	54	Strengthen NBSC with private sector participation; strengthen inter-ministerial coordination; mandate unified planning, dispute resolution, and annual infrastructure roadmap	MCIT	2026-2028	0.5	-	-	0.5

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		55	Develop registration database for gazetted Critical Information Infrastructure and ensure their protection	MCIT	2026-2028	0.3	-	-	0.3
		56	Develop & Operationalize one-stop digital permitting platform (e-permits)	MCIT, TCRA, NEMC, PMO-RALG, Roads Fund Board, TANROADS / TARURA, TANESCO, TRC, MNOs/ ISPs and Related Zanzibar Authorities	2026-2028	2	-	-	2
		57	Develop National Digital Infrastructure Registry - NDIR	MCIT, TCRA, MNOs/ ISPs	2026-2028	1	-	-	1
		58	Review and rationalize right of way and other operation fees for ICT critical infrastructure (fiber cable, IXPs, DCs, etc.) to encourage shared broadband infrastructure builds	MCIT, MoW, TCRA, MNOs, ISPs	2026-2028	1	-	-	1

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		59	Review and reduce RoW fees to lower deployment costs, expand fiber networks in underserved areas, and attract private investment	MCIT, PMO-RALG, MoW, TANROADS, TARURA, TRC, TPDC, EACOP	2026-2028	0.1	-	-	0.1
		60	Establish RoW Digital Infrastructure corridor and guideline for fiber infrastructure maintenance and relocations along roads ROWs	MCIT, MoW, MLHHSD, TANROADS, TARURA, TCRA, TAMNOA	2026-2028	0.1	-	-	0.1
		61	Update Infrastructure Sharing Regulations to effectively mandate/enforce infrastructure sharing (ducts, fiber, poles, towers, power, DCs, RAN, etc.)	MCIT, TCRA	2026-2028	1	-	-	1

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		62	Streamline Licensing & RoW Regulations - Implement “Deemed Approval” for RoW within 7 days; digitize permit processes via single-window platform; enforce “Dig Once” framework nationally obliging operators / ISPs to implement shareable (multi-tenants) ICT infrastructure (ducts, aerial fiber Poles, towers)	MCIT, TCRA, PMO-RALG, Roads and Railway Agencies,	2026-2028	0.5	-	-	0.5
		63	Integrate ICT- utility - transport infrastructure planning & deployment	MCIT, UCSAF, MoE, MoW, MoT, MoWA, EWURA, TCRA, REA/ TANESCO, TANROADS/ TARURA, TRC, TPDC	2026-2036	4	6	10	20
		64	Establish an integrated digital infrastructure monitoring and analytics dashboard	MCIT, TCRA, ICTC, MNOs, ISPs	2026-2028	1	-	-	1

S/N	Focus Area	Prj#	Key Initiatives (Projects)	Stakeholdewr(s)	Time Frame	Short-term Budget (2026 - 2028) TZS Bn	Medium-term Budget (2029 - 2031) TZS Bn	Long-term Budget (2032 - 2036) TZS Bn	Total Budget TZS Bn
		65	Consolidate a unified National ICT Infrastructure Code defining uniform standards for fiber, towers, and data centres	MCIT, TCRA, TBS	2026-2028	0.1	-	-	0.1
		66	Update Environmental and Green ICT Regulations to simplify EIA procedures for low-impact ICT projects; enforce green procurement in all ICT tenders and e-waste management	MCIT, NEMC, PPRA, TCRA	2026-2028	0.1	-	-	0.1
		67	Strengthen regulatory compliance through awareness and training 100+ regulatory and technical staff annually;	MCIT, TCRA, TAMNOA, MNOs, ISPs, TISPA, Dev Partners	2026-2031	1	1	-	2
		68	Update/Develop TNBS 2027-2032 and Cloud Regulation Framework.	MCIT	2026-2028	1	-	-	1
					TZS Bn	3,964	4,392	6,921	15,277

Annex 6: Risk Registry

A. Cross-Cutting Risks & Challenges

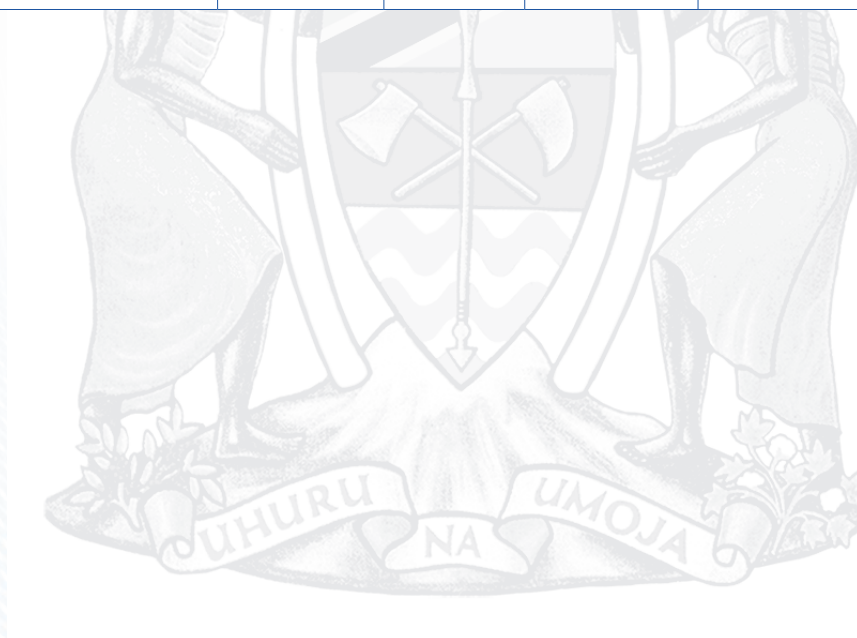
Risk	Description	Prj# Affected	Likelihood	Impact	Risk Level	Mitigation Strategy	Responsible
Funding Shortfall	Inadequate or delayed budget funding (TZS 15, 277 Bn total)	All	High	High	CRITICAL	Secure multi-year budget commitments from the Government and Development Partners to ensure consistent funding; develop public-private partnership (PPP) models to attract private investment, including revenue-sharing agreements, Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), and Design-Build-Finance-Operate-Transfer (DBFOT) models; prioritize projects with high return on investment (ROI) for phased funding; leverage Universal Communications Service Access Fund (UCSAF) contributions and international development partners like World Bank (WB), EU, Exim Bank and African Development Bank (AfDB) for grants and loans	MCIT, MoF, UCSAF

Stakeholder Coordination Failure	Lack of alignment among 20+ MDAs, LGAs, private sector	All	Medium	High	HIGH	Strengthen the National Broadband Steering Committee (NBSC) through Prj#54 by assigning clear roles, regular meetings, and performance metrics; establish dedicated inter-ministerial task forces for key strategic focus areas; implement a shared digital collaboration platform (e.g., integrated project management tool) to track progress, share updates, and resolve issues in real-time	MCIT, NBSC
Private Sector Reluctance	Low investor confidence due to various fees such as RoW/taxes, regulation	14, 20, 26, 27, 28, 29, 33, 49	Medium	High	HIGH	Implement various reforms under Prj#58 to reduce development cost on critical ICT infrastructure; review and reduce Right-of-Way (RoW) fees via Prj#56 to lower deployment costs and attract investments; reform open-access PPP frameworks through Prj#14, offering applicable incentives and streamlined regulatory approvals to build investor trust; Prj#10 to stimulate smart devices penetration and network expansion	MCIT, MoF, ICTC, TCRA

Skills & Capacity Gaps	Lack of expertise in 6G, HPC, IPv6, cybersecurity, AI, data science	20, 26, 27, 28, 29, 30, 31, 32, 34, 37, 39	High	Medium	HIGH	Partner with academia and research institutions (e.g., COSTECH, Universities, Digital Training Institutes) to develop specialized training programs; utilize community ICT hubs (Prj#2) for on-site skill-building workshops and certification courses; establish innovation parks (Prj#28) as centres for ongoing professional development, including internships, mentorship, and international knowledge exchange programs to build local expertise in emerging technologies; launch targeted AI and data science bootcamps under Prj#34	MCIT, ICTC, COSTECH, MoEST, Universities
Cybersecurity Threats	Expanded attack surface (5.59K hotspots, GovNet, NPKI, HPC, AI systems)	1, 35, 37, 38, 39, 40, 48	High	High	CRITICAL	Establish a National Cybersecurity Operations Centre (CSOC) via Prj#37 with integrated sectoral Computer Security Incident Response Teams (CSIRTs) for real-time threat detection and response; automate certificate issuance and revocation in the National Public Key Infrastructure (NPKI) under Prj#39 to enhance secure authentication; enforce security-by-design principles in all infrastructure deployments, including regular vulnerability assessments, encryption standards, and mandatory cybersecurity training for operators; integrate AI-driven threat prediction models	MCIT, TCRA, eGA, PDPC

Climate & Disaster Vulnerability	Fiber cuts, tower damage, power outages	16, 17, 43	Medium	High	HIGH	Extend and harden the core National ICT Broadband Backbone (NICTBB) with redundant routes and disaster recovery mechanisms through Prj#16 to ensure network resilience; upgrade towers, data centres, and remote sites with solar-hybrid power systems under Prj#43, incorporating weather-resistant materials and backup generators; integrate climate risk assessments into project planning and conduct regular drills for rapid response to natural disasters	MCIT, TTCL, REA, TANESCO
Fast Technological Evolution & Obsolescence	Rapid 6G, quantum, AI-native networks outpace 5G/HPC/NICTBB (TZS 5.9 Tn at risk)	18, 20, 26, 27, 28, 29, 30, 33	Medium	HIGH	Medium	Adopt modular, software-defined networking (SDN) and network function virtualization (NFV) architectures to allow easy upgrades without full replacements; integrate 6G-readiness into the 5G upgrade roadmap (Prj#20) with phased transitions; conduct biennial technology reviews (e.g., in 2028, 2031) to assess and pivot strategies; prefer leasing over outright purchasing for high-depreciation assets like 5G equipment and HPC nodes; establish a National Emerging Technology Foresight Unit under ICTC/TCRA to monitor global trends and recommend timely adaptations	MCIT, ICTC, COSTECH, TCRA, MNOs, ISPs

AI Bias & Ethical Risks	Bias in AI-driven public services, content recommendation, or decision systems (e.g., e-learning, health diagnostics, HPC analytics) leading to discrimination, misinformation, or loss of trust	7, 26, 27, 28, 29, 33, 34, 36, 37	Medium	High	HIGH	Establish an AI Ethics & Fairness Taskforce under MCIT/ ICTC to develop national AI governance guidelines; mandate bias audits and transparency reports for all public AI systems; integrate fairness-by-design in Prj#7 (Swahili content), Prj#27 (HPC), and Prj#36 (GovESB/Jamii Exchange); train 10,000+ professionals (Prj#31) in ethical AI; require open datasets and model interpretability in innovation parks (Prj#28) and sovereign cloud (Prj#27)	MCIT, PDPC, ICTC, COSTECH
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B. Project-Based Risks / Challenges

1. Universal Access and Digital Inclusion (Bridging the Digital Divide)

Prj#	Risk	Likelihood	Impact	Risk Level	Mitigation	Responsible
1	Vandalism/ theft of Wi-Fi equipment	Medium	Medium	MEDIUM	Install tamper-proof enclosures and security cameras on all 5,590 public Wi-Fi hotspots; foster community ownership through local engagement programs and awareness campaigns; integrate 24/7 monitoring via the National CSOC to detect and respond to incidents promptly, including partnerships with local law enforcement for rapid intervention	UCSAF, LGAs
1, 2	Low usage due to digital literacy	High	Medium	HIGH	Deploy on-site support staff at community ICT hubs (Prj#2) to provide hands-on training and digital literacy workshops; integrate educational programs into schools and health facilities connected via hotspots, including tailored content for underserved groups like women and rural communities; track usage metrics and adjust programs based on feedback to ensure sustained adoption	ICTC, MoEST, LGAs
3	Delays in rural tower site permits	Medium	High	HIGH	Operationalize the one-stop digital permitting platform (e-permits) under Prj#56 to streamline approvals and reduce processing time to under 30 days; develop a National Digital Infrastructure Platform (Registry) (Prj#57) for pre-identified and pre-approved sites in rural wards; collaborate with local governments to conduct community consultations early in the planning phase to minimize objections	UCSAF, TARURA
4	High cost/ latency of satellite	Medium	Medium	MEDIUM	Negotiate bulk licensing agreements with LEO/GEO providers to lower costs; integrate satellite services with national fiber backhaul networks (Prj#4) for improved latency and reliability; subsidize deployment in remote villages through UCSAF and development partners, including performance-based incentives for service providers to maintain quality standards	MCIT, UCSAF, MNOs/SPs
5	Campaign fails to reach 5M citizens	Medium	Medium	MEDIUM	Use mobile units, schools, and community ambassadors with geo-targeted outreach; partner with NGOs and MNOs for last-mile distribution; monitor via digital literacy dashboards and adjust tactics in real-time	MCIT, MoEST, PMO-RALG
6	Subsidy program abused or ineffective	Medium	Medium	MEDIUM	Implement digital verification (via NIDA) for device/data bundle distribution; zero-rate only verified education/health/gov sites; audit distribution quarterly	TCRA, PPRA
7	AI-generated content in Swahili is biased or inaccurate	Medium	High	HIGH	Establish content moderation board under National Content Taskforce; require human-in-the-loop validation for AI-generated e-learning/e-health materials; enforce WCAG + cultural sensitivity standards	COSTECH, MoEST, MoH

2. High-Speed Broadband Infrastructure

Pri#	Risk	Likelihood	Impact	Risk Level	Mitigation	Responsible
14	Fail to attract TZS 6–8 Tn private investment	Medium	High	HIGH	Offer/apply investment incentives; guarantee revenue sharing in open-access PPP frameworks; conduct pilot PPP projects; engage investors via roadshows/forums	MCIT, ICTC, TNBC, TAMNOA
15	Tariff reductions opposed by operators	Medium	Medium	MEDIUM	Phase reductions with performance incentives; publish cost-benefit analysis showing long-term revenue growth	TCRA
16, 17	Fiber cuts during roadworks	High	High	CRITICAL	Enforce Critical Information Infrastructure guidelines; reform compensation policies; mandate “Dig Once/Erect Once” framework; use National Digital Infrastructure Registry to protect fiber routes	MCIT, MoW
20	Spectrum interference, 6G delays	Low	High	MEDIUM	Pre-clear and allocate spectrum bands; develop 6G-readiness roadmap; collaborate with MNOs on pilot deployments	TCRA, MNOs
21, 24	MNOs, ISPs/CDNs resist local peering	Medium	Medium	MEDIUM	Subsidize IXP operation costs; mandate regulatory requirements for local peering; engage content providers with incentives	MCIT, TISPA
23	New IXPs underutilized	Low	Low	LOW	Co-locate IXPs in underserved regions; run marketing campaigns; train ISPs on benefits; monitor utilization metrics	TISPA

3. Innovation & Emerging Technologies

Pri#	Risk	Likelihood	Impact	Risk Level	Mitigation	Responsible
26, 27	High energy demand, unreliable power	MEDIUM	Medium	MEDIUM	Upgrade towers and data centres with solar-hybrid systems (Prj#43) to provide reliable, renewable power sources; locate facilities near stable TANESCO substations and incorporate energy-efficient hardware designs; implement power management protocols	TCRA, MNO, ISP, Data centre Operators, Tower Service providers, TANESCO
27	HPC/cloud becomes white elephant	Low	High	MEDIUM	Anchor the national HPC and sovereign cloud with mandatory public sector usage (e.g., eGov, health, smart agriculture, education data processing); develop open APIs and developer toolkits to encourage startup and private sector adoption; conduct regular utilization audits and marketing initiatives	MCIT, eGA, ICTC
28	Parks fail to attract users/ customers/ investors	Medium	High	HIGH	Offer competitive incentives and subsidies for users/customers/ investors in the 7 innovation parks; anchor parks with government R&D labs and essential services to create initial momentum; partner with global tech firms for joint ventures, mentorship programs, and events	MCIT, TISEZA, ICTC, COSTECH
29	Edge DCs underused or insecure	Medium	Medium	MEDIUM	Mandate local data caching for public services; integrate with CSOC (Prj#37) for security; co-locate with IXPs and innovation parks	NIDC, MNOs
30, 31, 32	Slow IPv6 adoption	High	Medium	HIGH	Enforce and implement a National IPv6 Migration Strategy Plan (Prj#30) with phased timelines; establish regulatory frameworks (Prj#32) requiring IPv6 support in new networks; integrate IPv6 compliance into public ICT procurement standards (Prj#31), including mandatory requirements in tenders and subsidies for transition costs	MCIT, TCRA
33	ICT Fund misused	Low	High	MEDIUM	Establish independent oversight board; require impact reporting; prioritize startups aligned with national digital goals	MCIT
34	Training programs fail to produce skilled workforce	Medium	Medium	MEDIUM	Certify programs with industry; include practical internships in parks (Prj#28) and HPC (Prj#27); track employment outcomes	COSTECH, Universities

4. Cybersecurity & Digital Trust

Pri#	Risk	Likelihood	Impact	Risk Level	Mitigation	Responsible
35	GovNet delayed by MDA bureaucracy	Low	High	MEDIUM	Leverage NBSC (Pri#57) for top-level enforcement, including tying GovNet expansion to MDA performance contracts and KPIs; facilitate workshops to align priorities and resolve conflicts	MCIT, eGA, PMO-RALG
11, 13	Devices stolen or poorly maintained	Medium	Medium	MEDIUM	Implement asset tracking systems with GPS and RFID; secure insurance coverage and establish central maintenance contracts; train local ICT champions in schools	MoEST, UCSAF, PMO-RALG
37	CSOC understaffed, no threat intel	Low	High	MEDIUM	Partner with international CERTs for knowledge transfer and joint operations; automate threat intelligence feeds and incident response tools; enforce mandatory incident reporting from all sectors	MCIT, TCRA
39	NPKI key compromise	Low	High	MEDIUM	Use Hardware Security Modules (HSM) for secure key storage; perform regular independent audits and penetration testing; implement multi-party key ceremonies and automated revocation processes	MCIT, TCRA, NIDA, ICTC
40	National Clock sync failure	Low	High	HIGH	Deploy redundant atomic clocks with GPS and terrestrial backups for failover; integrate the National Reference Time System with ICT networks for precise synchronization; conduct regular drift monitoring and calibration	TCRA
36	AI in GovESB/Jamii Exchange leads to biased decisions	Medium	High	HIGH	Require algorithmic transparency and bias audits for all AI-integrated services; establish appeals mechanism; train officials on ethical AI use	MCIT, ICTC, eGA

5. Sustainability & Regional Integration

Pri#	Risk	Likelihood	Impact	Risk Level	Mitigation	Responsible
43	Solar systems fail in harsh climate	Medium	Medium	MEDIUM	Use tropicalized solar panels and components designed for high humidity and temperatures; implement predictive maintenance using IoT sensors for real-time monitoring; train local technicians for on-site repairs	REA, operators
44	Subsea cable delays (geopolitics)	Medium	High	HIGH	Diversify subsea cable routes and join multiple consortia to spread risk; secure bilateral agreements with neighbouring countries for terrestrial links; maintain and upgrade existing cables while aligning with EAC/SADC/AU master plans	MCIT, Consortia
45	Weak e-waste enforcement	Medium	Medium	MEDIUM	Update Environmental and Green ICT Regulations (Pri#66) to impose producer responsibility; simplify EIA procedures for low-impact projects; launch public awareness campaigns and monitoring programs	NEMC



6. Institutional & Regulatory Readiness

Pri#	Risk	Likelihood	Impact	Risk Level	Mitigation	Responsible
56	e-Permits rejected by legacy agencies	Low	High	MEDIUM	Conduct a phased rollout of the one-stop digital permitting platform with pilot testing in select regions; provide change management training and support for agencies; enforce legal mandates requiring digital-only submissions	MCIT, PMO-RALG, TANROADS, TARURA, NEMC
58, 59	Resistance to Tax/RoW cost deduction	High	High	CRITICAL	Present detailed ROI studies demonstrating economic benefits of reforms; pilot reductions in high-growth regions to build evidence; engage stakeholders through consultations and tie reforms to broader incentives like increased infrastructure sharing	MCIT, TCRA, MoF, LGAs, MNOs
61, 62	Operators bypass sharing rules	Medium	Medium	MEDIUM	Update Infrastructure Sharing Regulations (Prj#61) with clear mandates and penalties for non-compliance; mandate "Dig Once/Erect Once" framework (Prj#62) for shareable infrastructure; publish a compliance dashboard (Prj#64) for transparency and conduct annual audits	TCRA
63	Utilities Resistance to joint trenching	Medium	Medium	MEDIUM	Legislate integrated planning across ICT, utilities, and transport sectors (Prj#63) with enforceable guidelines; incentivize participation through shared cost savings and joint funding models; establish coordination committees	MCIT, MoW, TANESCO
55	Critical Information Infrastructure cyber-attack disrupts services	Medium	High	MEDIUM	Integrate NOC with National CSOC (Prj#37); use zero-trust architecture	MCIT, TCRA

Annex 7 - Guiding Technical Drawings & Maps

Annex 7.1 Integrated National Optic Fibre Route Map

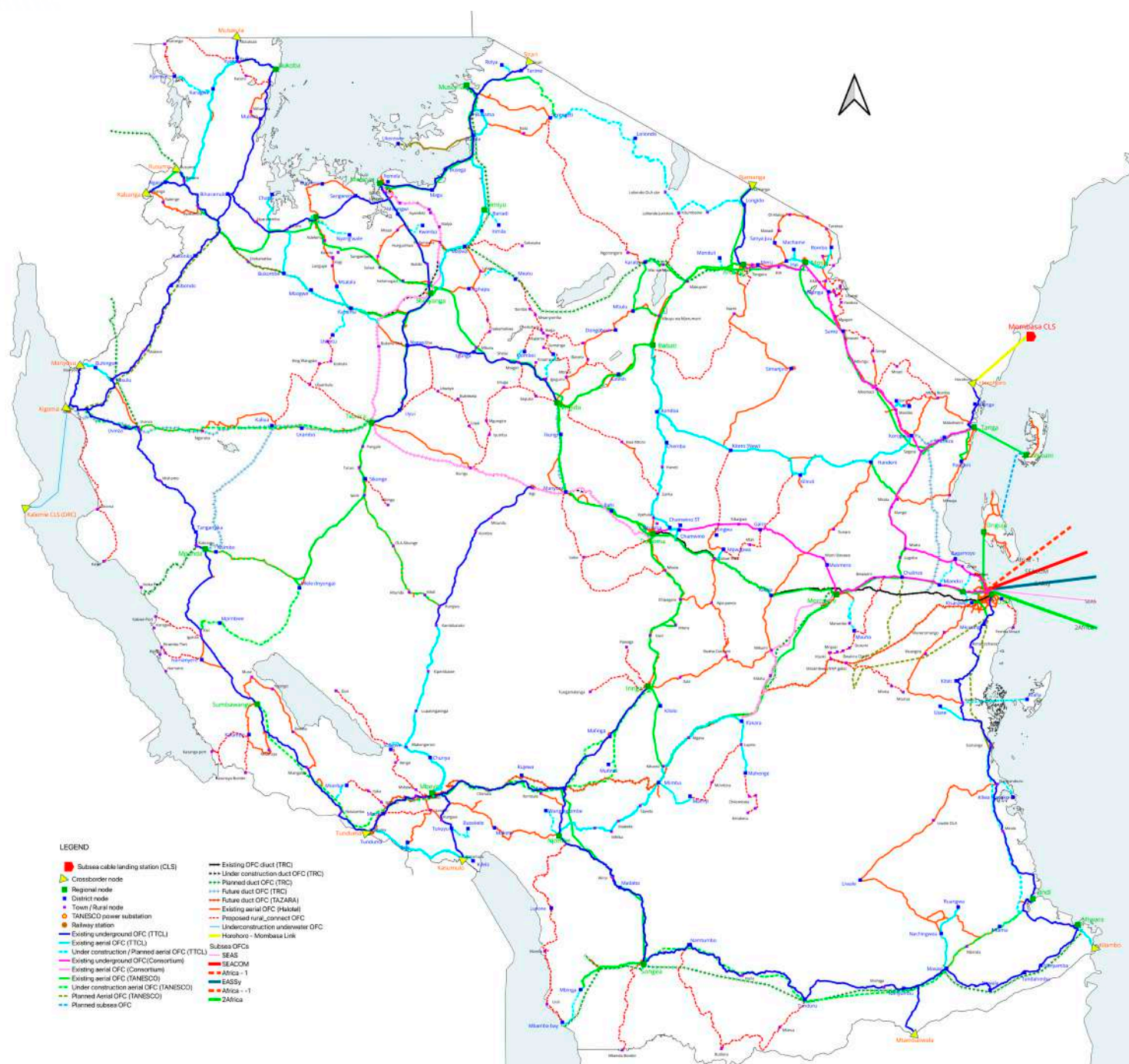


Figure 5: NICTBB Integrated Optic Fiber Cable Routes Map

Annex 7.2 National ICT Backbone Transport Topology

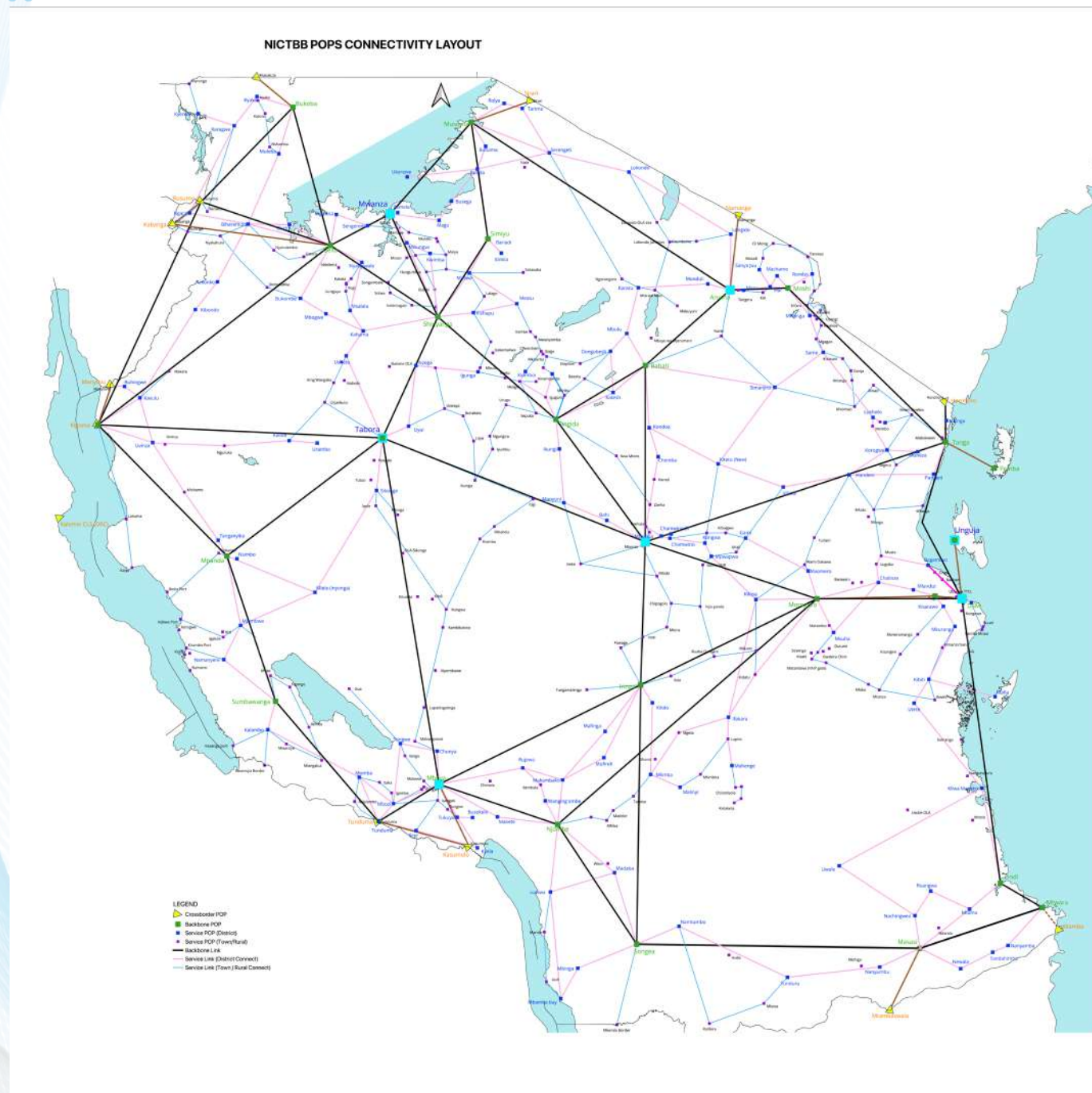


Figure 6: NICTBB Network Topology - POPs Connectivity

Annex 7.3 NICTBB Network Architecture

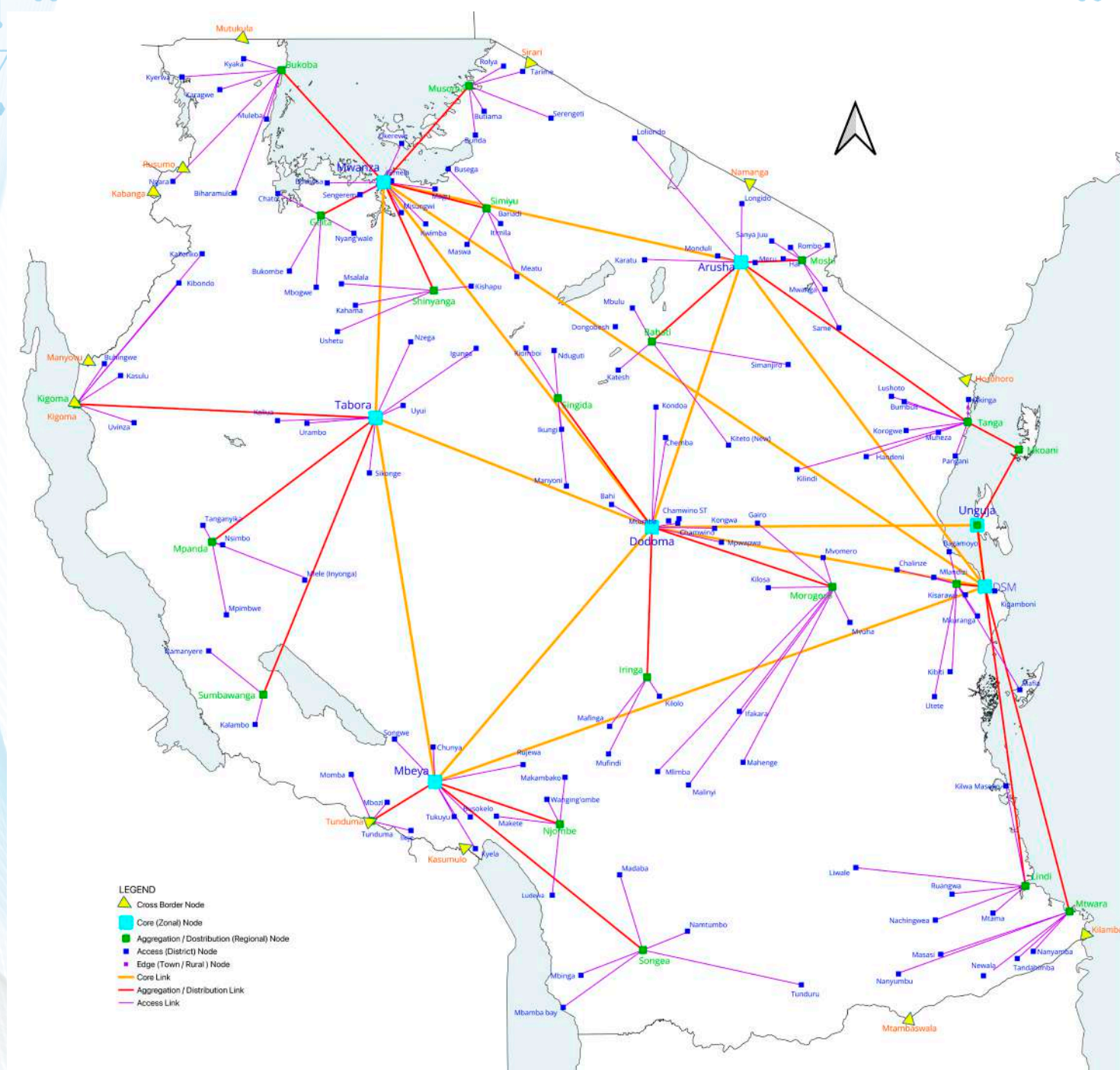


Figure 7: NICTBB Network Layers Architecture

Annex 7.4 Crossborder Traffic Routing Architecture

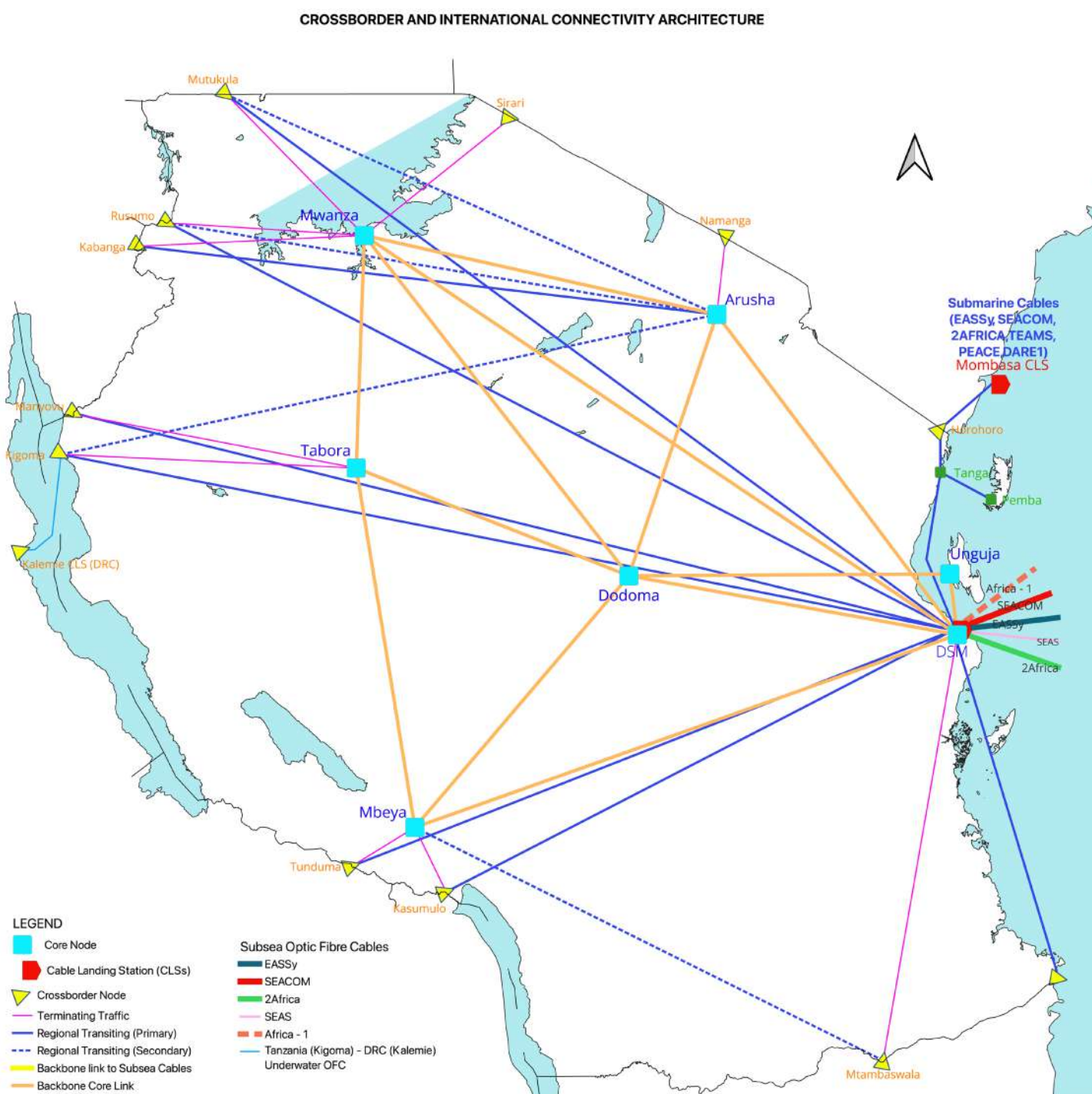


Figure 8: NICTBB Cross-border Traffic Architecture

Annex 7.5 Projected Additional Towers for Universal Communication Services

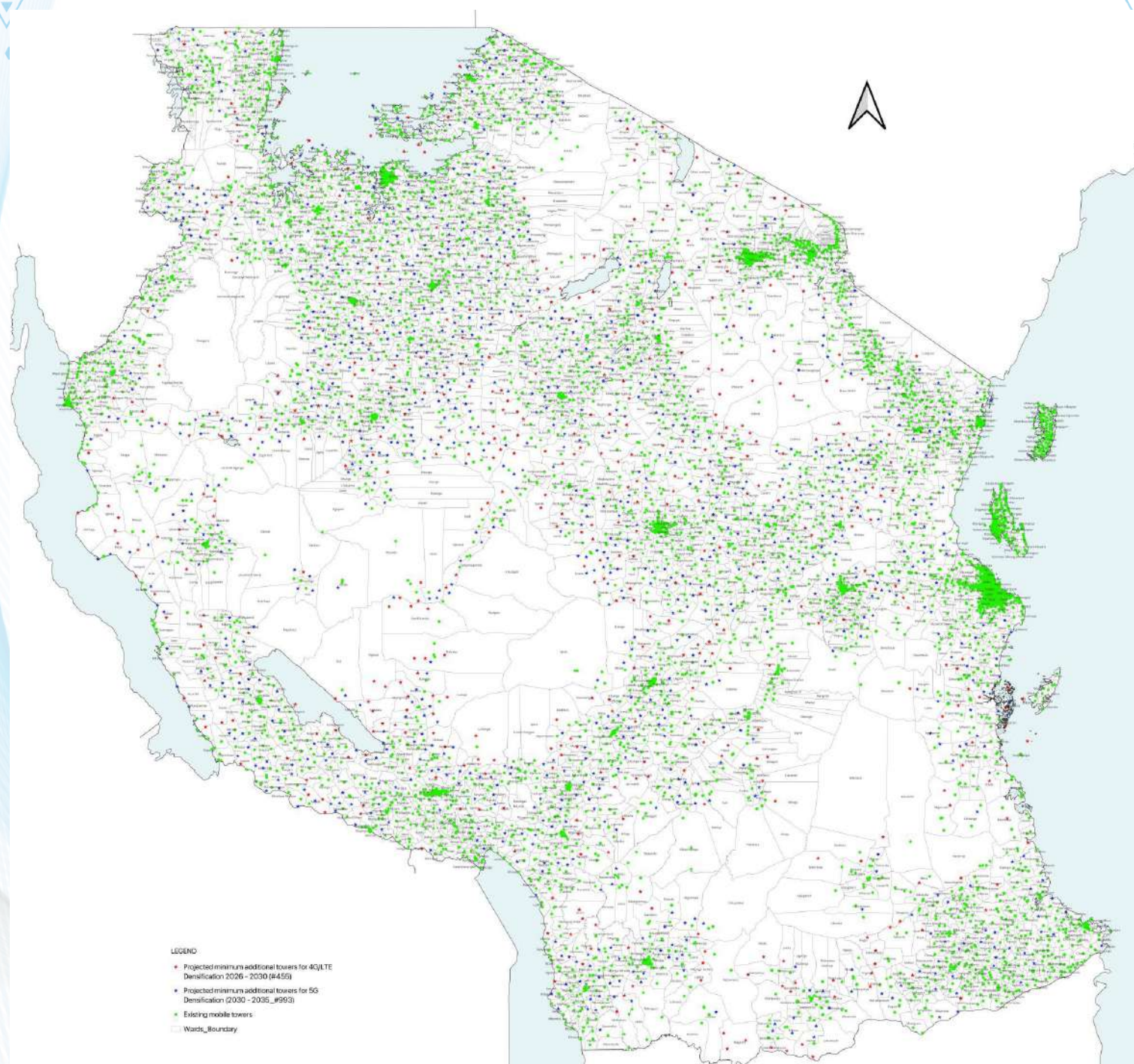
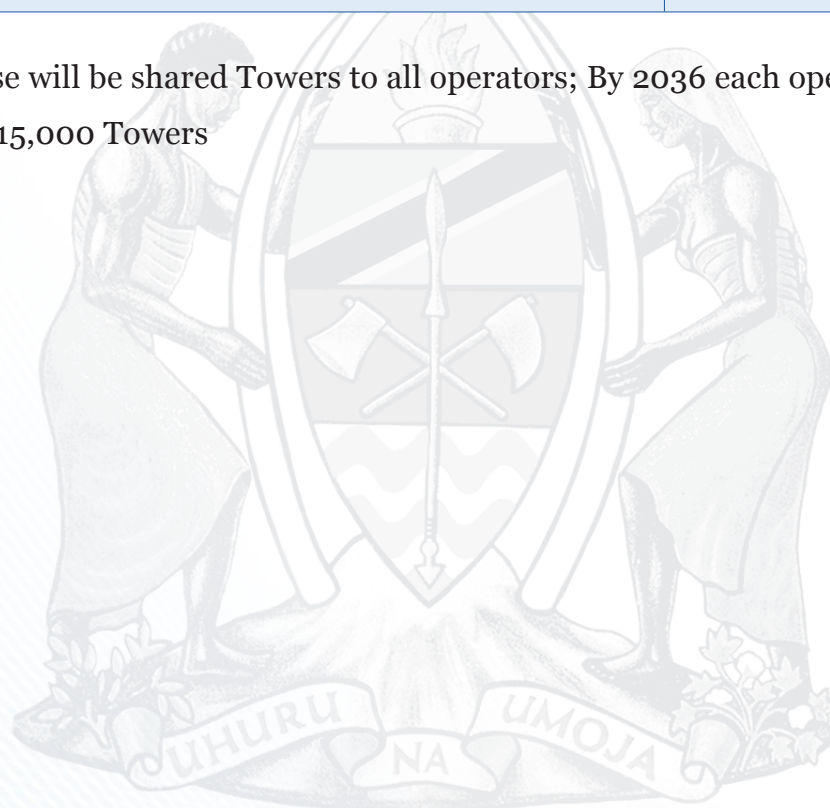


Figure 9: Spatial Map - Projected Additional Towers per Ward For Broadband Services

Table 8: Estimated Minimum Additional Towers Required for Universal Communication Population Coverage by 2030/31

S/N	Site Category	Number of Planned Sites
1	SGR/MGR	62
2	TAZARA	19
3	BORDER	31
4	ROAD	585
5	NATURE RESERVE	36
6	ISLAND	28
7	OTHERS	1,782
	TOTAL	2,543

Assumption. These will be shared Towers to all operators; By 2036 each operator is supposed to have/use at least 15,000 Towers





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