THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF INFORMATION, COMMUNICATION AND INFORMATION TECHNOLOGY

DRAFTED NATIONAL ICT POLICY, 2023

This document is submitted for review and collection of stakeholders inputs as part of process to establish the New National ICT Policy 2023

AUGUST, 2023

FOREWORD BY MINISTER OF INFORMATION, COMMUNICATION AND INFORMATION TECHNOLOGY

The ever-evolving landscape of Information and Communication Technology (ICT) has been a driving force behind our nation's economic growth. With advancement in ICT, increased internet penetration, the rise of mobile devices, and the growing demand for digital services, the communication sector now plays a crucial role, contributing approximately 1.5% to our national GDP. Over the past five years, our GDP has shown an impressive average growth rate of 8%, fueled in part, by businesses heavily investing in digitalization to meet the rising demand for technology products and services.

On a global scale, the digital economy has proven to be a significant contributor to the GDP of nations worldwide, contributing trillions of dollars each year. Countries and businesses that embrace digitalization thrive, while those that overlook its potential risk slowing down their growth and losing market share. Digital technologies empower businesses to enhance efficiency, reach new customers, and create innovative products and services. Recognizing the pivotal role the communication sector plays in a digitalized national economy, the incoming 5th Phase Government of 2020 took decisive action by establishing the powerful Ministry of Information and Communication Technology. This ministry leads the charge in championing national digitalization initiatives.

At the core of our emerging digital economy lies digital transformation, and our National ICT Policy 2023 forms its cornerstone. This policy aligns with the Digital Economy Strategic Framework 2023-2033, driving our vision of a digitally transformed and competitive national economy that fosters digital innovation and entrepreneurship. To support this vision, the government is committed to developing an enabling and integrated digital infrastructure that facilitates secure data sharing among public and private organizations. By eliminating traditional bureaucratic silos and redundancy in the public sector, we aim to enhance efficiency and effectiveness in both public and private service delivery. Our efforts are bolstered by a conducive legislative, regulatory, and institutional framework.

Embracing the digital economy is not just a choice but an imperative for Tanzania's economic competitiveness in the modern world. Ignoring its impact could lead to missed economic development opportunities and jeopardize our nation's economic survival. Beyond economic consequences, the adoption of ICT-driven digitalization also holds social and political significance. Organizations that neglect digital technologies may struggle to equip their employees with the necessary skills, leading to social inequality and exclusion.

The National ICT Policy 2023 reflects our government's unwavering commitment to transforming Tanzania into a digital-driven economic powerhouse. By promoting targeted initiatives in modern ICT infrastructure development and investing in innovative digital service delivery platforms, we aim to achieve global and regional development goals, surpassing the targets set in the United Nations' 2030 Agenda for Sustainable Development and the African Union's Vision 2063.

This policy acknowledges and addresses the insights gained from the review and analysis of the ICT Policy 2016, identifying gaps, limitations, and challenges to be addressed during its implementation. Furthermore, it incorporates new developments in the communication and broadcasting sectors, serving as the blueprint for our nation's socioeconomic development.

Together, with the implementation of the National ICT Policy 2023, we are poised to harness the full potential of ICT and drive Tanzania towards a prosperous and digitally empowered future.

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Hon. Nape Moses Nnauye (MP)
Minister of Information, Communication and Information Technology

PREFACE BY THE PERMANENT SECRETARY MINISTRY OF INFORMATION COMMUNICATION AND INFORMATION TECHNOLOGY

The National ICT Policy 2016 (NICTP-2016) was designed with a forward-looking perspective, aligning with Vision 2025, recognizing that Tanzania's accelerated development within the information and digital age necessitates an ICT-driven development agenda. As we embark on the National ICT Policy 2023 (NICTP-2023), we acknowledge that digitalization lies at the heart of the emerging competitive landscape that characterizes the global digital economy. Over the past two decades, the ICT sector has played a profound and vital role in contributing to our national economy. Collaborative efforts involving government MDAs, Development Partners, and Mobile Network Operators have harnessed various opportunities presented by the digital economy.

One notable example of this transformation is increased financial inclusion, where digital technologies have made it convenient and secure for traditionally excluded individuals to access banking services through platforms like NMB Mkononi and CRDB's Simbanking. Traditional brick-and-mortar banking is gradually being replaced by online and mobile banking services, empowering customers to perform transactions effortlessly through their smartphones.

The establishment of GovNet, the government ICT network, and the National ICT Broadband Backbone, the national fiber optic infrastructure, have laid the groundwork for integrated government service delivery platforms. This sharing of key service data fosters a connected and coordinated approach while eliminating costly duplication of functions across government departments and agencies. The conducive policy and regulatory environment have played a pivotal role in promoting investment and innovation in the ICT sector, giving rise to a vibrant and competitive digital culture in the country.

This propels Tanzania further towards becoming a knowledge-based society while providing the essential digital infrastructure to boost revenue collection for national development projects. Notably, projects like the ambitious and transformative Julius Kambarage Nyerere Hydroelectric Power Project, gain immense economic potential with the support of digital technologies. The policy also emphasizes the importance of nurturing an innovation and entrepreneurial culture, supported by reskilling and upskilling programs to equip employees with the digital competencies required for the

digital economy. Bridging the digital skills gap is a collective endeavor that demands collaboration from all stakeholders in the public and private sectors, to create a more resilient, capable, and inclusive digital economy.

In closing, the Ministry of Information, Communication, and Information Technology (MICIT) extends profound gratitude to all public and private sector stakeholders, recognizing them as enablers and beneficiaries alike, for their invaluable contributions in advancing our nation's digital transformation agenda. Together, we forge ahead on this transformative journey, leveraging on the power of ICT to shape a brighter and digitally empowered future for Tanzania.

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Mohamed Khamis Abdullah
Permanent Secretary
Ministry of Information Communication and Information Technology

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LIST OF ABBREVIATIONS AND ACRONYMS

AI	Artificial Intelligence
ATU	African Telecommunications Union
ASO	Analogue Switch-off
BPO	Business Process Outsourcing
BRELA	Business Registration and Licensing Agency
BoT	Bank of Tanzania
CEIR	Central Equipment Identification Register
CERT	Computer Emergency Response Team
CIVE	College of Informatics and Virtual Educations of the University of Dodoma
CLF	Converged Licensing Framework
COICT	College of ICT of the University of Dar es Salaam
COSTECH	Tanzania Commission for Science and Technology
CSO	Civil Society Organization
CTO	Commonwealth Telecommunications Organization
DSM	Dar es Salaam
DTBi	Dar Teknohama Business Incubator
EAC	East African Community
EaSSy	Eastern Africa Submarine Cable System
e-GA	e-Government Authority
e-GAZ	e-Government Authority Zanzibar
e-GSB	e-Government Service Bus
ERB	Engineers Registration Board
FDI	Foreign Direct Investment
FYDP	Five Year Development Plan
G2B	Government to Business
G2C	Government to Customer
G2G	Government to Government
Gbps	Gigabits per second

GDC	Government Internet Data Centre
GDP	Gross Domestic Product
GePG	Government Electronic Payment Gateway
GSB	Government Service Bus
GMS	Government Mailing System
HCMIS	Human Capital Management Information System
ICT	Information and Communications Technology
ITES	Information Technology Enabled Services
ITSO	International Telecommunications Satellite Organization
ITU	International Telecommunication Union
IXP	Internet Exchange Point
KPI	Key Performance Indicator
LGAs	Local Government Authorities
M&E	Monitoring and Evaluation
MDAs	Ministries Departments and Agencies
MNOs	Mobile Network Operators
NACTVET	National Council for Technical and Vocational Education Training
NIDC	National Internet Data Centre
NGO	Non-Government Organization
NICTBB	National ICT Broadband Backbone
NICTP	National ICT Policy
NICT –TC	National ICT Technical Committee
NICT –SC	National ICT Steering Committee
OFC	Optical Fiber Cable
PPP	Public Private Partnership
PEPMIS	Personal Performance Management Information System
R&D IE	Research and Development, Innovation and Entrepreneurs

RALG	Regional Administration and Local Government
RASCOM	Regional African Satellite Communications
SADC	Southern African Development Community
SEACOM	Southern and Eastern Communications Network
SDN	Software Defined Network
MSMEs	Micro and Small and Medium Enterprise
Tbps	Terabits per second
TCU	Tanzania Commission for Universities
TCRA	Tanzania Communications Regulatory Authority
TISS	Tanzania Interbank Settlement System
TNA	Training Need Assessment
TNBC	Tanzania National Business Council
TPC	Tanzania Posts Corporation
TRC	Tanzania Railway Corporation
TTCL	Tanzania Telecommunication Company Limited
UCSAF	Universal Communications Service Access Fund
NACTVET	National Council for Technical and Vocational Education Training
VETA	Vocational Educational Training Authority
VPN	Virtual Private Network

GLOSSARY

Broadband	Transmission capacity that is faster than primary rate Integrated Services Digital Network (ISDN) at 10 Megabits per second (Mbps).
Broadcasting	A term referring to the distribution of information using Radio, Television, Internet and Intranet or webcasting.
Digital Divide	The technological gap between demographic and regions that have fully exploited ICT and those that have not. The digital divide is often associated with the resulting gap in terms of economic development
e-Commerce/e-transaction/trade	Business activities involving consumers, manufacturers, suppliers, service providers and intermediaries using computer networks such as the Internet
e-Service	e-Service represents one prominent application of utilizing the use of information and communication technologies in different areas. It includes among others e-commerce and other non-commercial services.
e-Government:	The use of information and communications technology by the government to transform relations with citizens, businesses, and within different arms of government.
e-Waste	Discarded ICT equipment including computers, office electronic equipment, entertainment device electronics, mobile phones, television sets, and refrigerators
Emerging Technologies	Refers to technologies that are currently developing, or that are expected to be available within the next five to ten years, and is usually reserved for technologies that are creating, or are expected to create, significant social or economic effects.
Information and Communications Technologies	Is a generic term used to express the convergence of information technology, broadcasting and communication. One prominent example is the Internet
Information-Based Economy	A country or region where ICT is used to develop an economic foundation and market transactions
Information	Embraces the use of computers, telecommunications and office systems technologies for the collection, processing, storing,

Technology	packaging and dissemination of information
Internet Exchange Point	A “peering point” for interconnecting ISPs and/or other IXPs for the purpose of localizing national traffic routing as opposed to using international routes to accomplish Inter-ISP traffic flow
Internet Service Provider	Also known as Internet Access Provider. A company that provides infrastructure for access to the Internet, or for interconnecting other ISPs and content-based or application-based services on the Internet
knowledge-Based Economy	An economy which is directly based on the production, distribution and use of knowledge and information
Knowledge-Based Society	A society with capabilities to identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development
Local Area Network	A computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves
Local Content	Expression and communication of a community’s locally generated, owned and adapted knowledge and experience that is relevant to the community’s situation and is characterized by location, culture, language and area of interest
Open Access:	Principle that gives any licensee right for access to any facility and/or service of the ICT Broadband Infrastructure Network on terms and conditions that are non-discriminatory, transparent and Affordable
Public Institutions	Entities such as Ministries, Departments and Executive Agencies (MDAs); Local Government Authorities (LGAs) and any other state-owned institution
Telecommunication Service	Shall mean the emission, transmission or reception of electronic information on in form of text message, voice (telephony) data transported via a Telecommunication Network.

CHAPTER ONE

INTRODUCTION AND STATUS

1. Introduction

The National ICT Policy of 2016 marks the country's second ICT policy, following the National ICT Policy of 2003. It was developed in accordance with Tanzania's Development Vision 2025, which aimed to transform Tanzania into a semi-industrialized economy. The 2016 National ICT Policy acknowledged the potential of emergent technologies to drive economic and social progress and was formulated within the context of development and poverty reduction frameworks. The policy defined numerous ICT strategies and goals to achieve an ICT-enabled and knowledge-based economy through the prudent development, implementation, and sustainable use of ICT to the benefit of all citizens and businesses of the United Republic of Tanzania.

The restructuring of cabinet by establishing a new Ministry for ICT in 2020 to champion and provide leadership for the government's digitalization agenda at the national level was among the strategic accomplishments of the interventions implemented under the ICT Policy 2016. The new Ministry's responsibilities include overseeing, formulating, coordinating, and monitoring the implementation of various policies pertaining to ICTs, Postal Services, Research, Development, and Innovation in ICT.

As part of the overall strategy to infuse ICT in support of various national digitalization interventions in the public and private sectors, various ICT units were also established under various MDAs and LGAs to provide the essential administrative and operational support for ICT.

In addition, efforts were made to shore up various ICT implementing institutions to assure their effective contributions to the effective delivery of digital transformation and the the establishment of a robust digital economy. The core institutions include the Tanzania Communication Regulatory Authority (TCRA), the e-Government Authority (e-GA), the Information and Communication Technologies Commission (ICTC), the Bank of Tanzania (BoT), the Tanzania Posts Corporation (TPC), the Universal Communications Access Fund (UCSAF), the Tanzania Telecommunication Corporation (TTCL), and the Tanzania Railway Corporation (TRC).

Collectively, these institutions have made commendable progress in promoting and enhancing the application of ICT in socio-economic development, as well as in creating valuable ICT products and services that foster digital transformation and improve the lives of Tanzanians. The subsequent sections present an analysis that highlights the current situation surrounding the implementation of the focus areas outlined in the National ICT Policy, 2016.

1.1. Situational Analysis

Policy and regulatory interventions in ICT have been critical in strengthening Tanzania's digital economy. These policies have created a highly competitive environment that is favourable to technological innovation and digital transformation. ICT has accelerated the country's transition to a knowledge-based society.

The ICTs sector has made significant contributions to the national economy over the past two decades. NICTP 2016 was developed within the context of Vision 2025 on the fundamental premise that "Tanzania's accelerated development in the emerging information and digital age will not be possible without an ICT-driven development agenda."

Notably, since the 2016 establishment of the country's NICTP, mobile phone and mobile internet penetration have assumed a central role in facilitating economic and social transformation. Tanzania has witnessed a number of stakeholders, including government MDAs, Development Partners, and mobile telecom providers, collaborate to take advantage of today's digital opportunities, such as Fintech, Digital Wallets, Citizen Inclusion in the Digital Economy, Money Kiosks, the Role of Broadband Penetration, and Digital Skills, which are all dependent on the country's ability to develop its own digital infrastructure.

The policy and regulatory environment has played a crucial role in facilitating investment, innovation, and access to the digital economy, as well as in stimulating competition by easing market entry and emphasizing consumer protection. The country is closer to becoming a knowledge-based society as a result of ICT. The sections that follow illustrate various aspects of the progress made:

1.1.1. Strategic ICT Leadership and Human Capital Development

1.1.1.1. Strategic Leadership

This focus area was based on the need to build capacity to the political leadership, and the senior and managerial human resources at the forefront of spearheading and championing the ICT policy implementation in both institutional and technical levels. Role of Strategic leaders was to cater for and enable transformation of a knowledge-based society as means of accelerating development goals.

Numerous efforts have been taken to build capacity of strategic leadership in ICTs. Capacity building to 1,345 Leaders, Management and Senior technical officials were made across different sectors. This can be illustrated by presence of ICT units established to enable a friendly adoption and utilization of various integrated management information systems in MDAs and LGAs such as e-Bunge, e-Cabinet, GMS, PEPMIS, HCMIS, Fleet Management Systems, and Tanzanite Portal. Various political leaders, top management and senior technical officials have been participating in various workshops, forums and dialogue focusing on digital transformation in the country. To cascade the e-Government implementation, the Chief Secretary leads the National e-Government Steering Committee to discuss and give directives for various issues related to implementation of e-government systems and services.

Despite of these achievements, the digital transformation agenda in the country faces some coordination challenges. This is because it relies on several key institutions to support its

implementation on which the imbalance of strategic leadership constitutes a minimal relative strength. This requires a need for strategic leaders to be fully equipped with the resources and high-end ICT skills to make their contributions impactful in digital transformation process.

1.1.1.2. Human Capital Development

Human capital development refers to the process of imparting and improving knowledge, skills, and capabilities that people have in an economy. Human capital is a key driver of economic growth and development by expanding the knowledge and skills base of people. The rapid pace of technological changes in the ICT sector demands a matching pace in the development of skills and competencies required to fully leverage on the benefits of new technologies. As the country is implementing the digital transformation agenda, availability of competent ICT professionals is of paramount importance to expedite full integrations of various ICT systems and applications into various services and productive sectors.

Several efforts have been made to develop the ICT human resources in the country including establishment of dedicated ICT colleges in universities such as the College of ICT (CoICT) of the University of Dar es Salaam and the College of Informatics and Virtual Educations (CIVE) of the University of Dodoma. There are also dedicated faculties/departments offering ICT related courses in several public and private universities and colleges in the country. According to the Tanzania Commission for Universities (TCU) and the National Council for Technical and Vocational Education Training (NACTVET), by 2022, there were 161 ICT Programmes that were being offered by different accredited institutions Also, ICT subjects have been introduced in primary and secondary school curricula.

The government has also established an ICT Commission of Tanzania (ICTC). Its functions include promoting the ICT sector by recognizing and build capacity and skills of ICT Professionals in the country. MICIT has developed an ICT scheme of service for ICT cadres in the public service. The Government has strengthened ICTC as the coordinating body which conducts various programs for capacity building in digital skills. ICTC has managed to conduct capacity building to ICT professionals and accredited certifications to 1515 professionals. Through the Digital Tanzania Project financed by World Bank, Government designed a special program to build digital skills to 500 ICT officer in the public sector in emerging technologies. The Government through ICTC has developed capacity building opportunities for people with special needs and participated in national and international digital skills capacity building. This is evidenced in 2022 during the 6th African Connected Girls Coding Camp, where 15 girls with disabilities (11 girls with visual impairment, 1 deaf and 3 physically impaired girls) participated. There are also initiatives for ICT capacity building for marginalised groups through UCSAF and other initiatives for women and girls like the “African Girls Can Code Initiative” implemented by UN Women in partnership with the government.

According to Global Digital Skills ranking, Tanzania ranks 111 globally with digital score of 3.3, which is below other East Africa Countries (Kenya-4.8, Rwanda 4.5, Uganda 3.7, South Africa 4.4) indicating a low level of awareness of digital skills among population. In 2018,

the Government conducted a Training Need Assessment (TNA) in various government institutions to identify existing ICTs -digital skills, needs, and gaps that involve 197 ICT staff employed in 26 Ministries, and the Digital Skills Need and Gap. The Assessment was then hooked up with assessment conducted by the then Ministry of Communication and Information Technology (MCIT) in January, 2021 involving 192 ICT professionals in both Public Institutions (MDAs and LGAs) and some private institutions. Both of the TNAs reflected that 99% of respondents involved the use of ICT in daily activities. 8.7 % responded that Intermediate ICT Skills are important to achieve their goals, 26.84% responded that Advanced ICT Skills is important to achieve their goals and more than 64.2% considered both basic, intermediate and advanced ICT skills are important to achieve their goals.

Despite achievements mentioned above, proper interaction and close coordination between the Government, higher education institutions and the industry is required for building a framework on skills and capabilities for future jobs in the digital economy. Capacity building programmes have paid little attention to new and emerging technologies; insufficient support from e-GA to build the capacity of Government ICT Cadres in MDAs and LGAs to capacitate fully development of ICT platforms and applications; lack of strengthened support for legal frameworks to facilitate ICTC accreditation process to ICT Professionals.

Therefore, there is the need of government initiatives to transform the society into sustainable digital development by strengthening the digital education pipeline, increasing awareness of pathways into digital occupations, developing and advanced digital skills, establishing and coordinating digital ambassadors, lifelong digital skills as well as managing and attracting the brightest and best individuals from within the country and globally when necessary. Constructive partnerships with private and third party organizations is required to support and establish sufficient number of Smart Hubs/ Boot Camps/Open Labs for coaching advanced digital skills. Additionally, introduction of incentives and better remuneration packages for competent ICT Professionals to reduce turn over and maintain them. Therefore, implementation of targeted areas based on digital skills and talent our country will be the best practice in national, regional and international level.

1.1.2. Broadband Access and Infrastructure Development

National ICT Policy, 2016 outlined a national roadmap for its priority areas which includes providing broadband connectivity to 80% of the population by 2025. In Tanzania, broadband connectivity covers mobile, fixed and satellite technologies. Currently, on average, the coverage of 3G networks is 72% of population while 4G coverage reaches 55% of the population. Smartphone ownership is about 27%. As of December, 2022 there were 31,172,544 internet subscriptions in the country and the number of mobile phones subscriptions stood at 60,277,027. The current situation is attributed to progress made over the past few years to expand and strengthen digital infrastructures. Such progress includes the 13,000 Km coverage of the National ICT Broadband Backbone (NICTBB) that connects all regional headquarters and several townships. The NICTBB is also set to be extended to other towns and district centres. The Government has also formed a consortium with Mobile Network Operators (MNO) to support the construction of metro and last mile broadband infrastructure that covered 27, 912 KM of Optic Fibre Cable (OFC) country wide.

Other achievements include the deployment of last mile infrastructures to LGA`s, hospitals, schools, and other government offices.

The policy has influenced the implementation of projects under sectorial ministries to impact the expansion of broadband connectivity's such as into MGR, SGR and TANESCO. NICTBB is terminated at 10 border points of Kenya, Uganda, Rwanda, Burundi, Malawi, Mozambique and Zambia to fulfil the Government's commitment to become a regional hub and connect neighbouring landlocked countries to the international submarine cables for global connectivity. Progress for connectivity with DRC via a submarine is underway. Tanzania is connected to three active submarine cables which land in Dar es Salaam: SEACOM, Eastern African Submarine Cable System (EASSy), and Seychelles East Africa System (SEAS). In addition, the arrival of the fourth international submarine cable (2Africa) will boost the global bandwidth connectivity. There are six (6) IXPs within the country that ensure all local traffics remain locally as well as connected to the IXPs of East African Countries. There are five (5) data centre infrastructure namely National Internet Data Centre–(NIDC), Government Data Centre (GDC), TiGO Data Centre, VodaCom Data Centre, and Wingu Data Centre which qualify to host mission critical systems.

Other critical ICT infrastructures include the National Identity platform which provides a comprehensive digital identification registry for every Tanzanian. Up to February 2023 the National Identification Authority (NIDA) had issued 19,950,833 unique personal identification numbers. Also, there are payment platforms such as the Tanzania Interbank Settlement System (TISS) that facilitate payment clearing amongst the banks, Tanzania Instant Payment System (TIPS) which is an interoperable digital payment platform operated by the BoT; the Government Electronic Payment Gateway (GePG); and interoperable mobile payment services operated by (MNOs) including M-Pesa, Tigo Pesa, Airtel Money, T-Pesa, Ezy-Pesa, and Halo Pesa which together have registered 40,953,496 mobile money users by December 2022.

On the other hand, a fibre optical cable manufacturing company (Raddy Fibre Manufacturing Limited) has been established in Pwani Region with a capacity to produce 24,000 Km of fibre per year. The company is a major boost to the fibre cable industry, providing an opportunity for cost reduction in the investment of fibre network infrastructure. Spectrum auction to MNOs held in October, 2022 has also released spectrum for the 4G networks expansion and deployment of the 5G networks.

The broadband infrastructure provides the backbone of the digital infrastructures and the enabler of our economy. However, a significant proportion of the population does not yet have access to broadband, 4G network, and related services. Moreover, our country is still missing critical elements necessary for the deployment of 5G for commercial purposes. The adoption rate has been abysmal due to the high cost of devices and low availability of 5G-enabled products and services. Unlike previous generations of mobile technology, 5G requires high density networks, implying that significant investment would be required to build additional sites and towers. However, the Government is committed to pushing 5G deployment. For example, recently TCRA has successfully conducted an auction to assign

spectrum licenses in the 700MHz, 2300MHz, 2600MHz, and 3500MHz bands which enable provision of 5G services.

The National ICT Policy, 2016 has not successfully foreseen e-readiness on establishment of basic infrastructures necessary to support expansion of digital infrastructures. Lack of basic infrastructure such as roads and electricity, indirect impacts investment cost, quality, reliability of telecommunication infrastructure.

A clear policy is required to ensure a conducive environment for collaboration of public and private sector in exploring various means of financing and deploying ICT infrastructure and access to broadband services; ensure availability, accessibility, reliability, safety and affordability of digital infrastructure and services countrywide; ensure the realization of a unified broad-based platforms (X road) across service providers, and enhance protection of the nation's critical information infrastructures.

1.1.3. Frequency Spectrum and Other Scarce ICT Resources

The policy had managed to establish spectrum regulating mechanism at the communication regulatory authority that had ensure availability of it to various public consumptions. Note to that it had not forecast the operand management of it for various usage that favor both sectors in a competitive economy. Withstanding vast innovations driven by an open technological research, other Acts and regulations that had sited usage of it had to be improved to allow issuing licenses for colocation activities. The outgoing policy had no clarity on continuous financing spectrum management for future usage.

With the continuous technological innovation in the digital world such as migration from IPv4 to IPv6, it had triggered the needs to enhance efficiency and transparency in the management and utilization of scarce ICT resources for better sustainability of ICT industries. The NICTP 2016 had to be replaced with renovated visions that intensify needed incentives into increase research on ICT resources compatibility -to systems and other devices.

1.1.4. E-Services and Local Content Development

1.1.4.1. E-Services

E-services aim at creating new opportunities for institutions i.e. Government, companies of all sizes to engage in trade, provision of services which lead to efficiency gains through lower transaction costs and reduced information asymmetries. Other benefits include lower consumer prices, increased market access, more competition, better use of underutilized resources and increased flexibility for the providers of services. In 2016, the Government through e-GA has leapfrogged in the area of e-services by establishing electronic payment platform, GePG as well as development of Government Service Bus (GSB) in order to have cohesion of the digital public service delivery. Acknowledging the role of e-GA in spearheading digital payment in public sector, the electronic Government Agency was elevated to an Authority, which provided in higher mandate in oversee the use of the data generation for the better of the citizen.

Despite the progress which has realized some challenges which still exist inadequate integration and interoperability of centralized application systems across sectors; no existing guideline on data management i.e exchange, standards, dictionary which led to the generated data not be used in the public policy decision making; lack of a single framework which could foster and promote e-services critical sector to drive digital transformation; plummeting of ITES/BPO due to unfriendly government directives. Moreover, development of e-service in the country has not fully locked the potentials of the emerging technologies. Utilization of emerging technologies such as AI due to unavailability of high-quality data infrastructures. AI requires the existence of core infrastructure, capable of collecting, storing, transferring and processing large amounts of data faster than traditional data systems. According to the Government AI Readiness Index, Tanzania has a score of 32.69 out of 100, just above Sub-Saharan Africa's average but still low compared to countries globally 59 while the Five-Year Development Plan (FYDP) III mentions emerging technologies such as AI and block chain, it does not lay out an implementation plan. The demand for digital solutions built upon emerging technologies is low. At the same time, on the supply side, Tanzania lacks requisite skills and expertise in technologies.

The New Policy Framework is required to strengthen and facilitate digital adoption, access, and effective use of digital technology to increase scope, inclusiveness, coverage and quality of Government e-services; use of digital platforms in facilitating inter-institutional collaboration and coordination in public and private sectors. The policy framework should set out strategies to Promote a trustworthy and sustained cashless economy; a unified Identity platform to support the Digital Economy across Tanzania as well as ensure the global corporations

1.1.4.2. Local Content Development

Initiative in both public and private sector, various effort has been embarked in formulation of innovation and incubation centres which aim also at multiplying the local content in the digital arena. Several legal and regulatory frameworks in the area of e-Government, electronic transaction and data protection have aimed at safeguarding content development. Infrastructures such as data centre (in Dar es Salaam) and expansion of the cloud service has made possible for the content to available locally. In promoting digital export and fostering south-south cooperation, the Government has entered into agreements (MoU`s) with various country to be able to share experience and trade e-services products produced locally. Partnership between Tanzania Start-Up Association and the Government has made possible for the later to acquire a loan which is expected to speed up content development in the country.

Regardless of the mentioned achievement bottlenecks which has been observed include: insufficient incentive mechanisms for development and promotion of local ICT products/solutions; little or no assessment (user data supply/demand survey) on data hosting requirements/local hosting demand/investment; need to develop Local Content Policy, Strategy and Guidelines; lack of provision for Digital Government (G2G, G2C, G2B) for efficient public services; unavailability of the database on Local ICT products/solutions; minimal collaboration/partnerships between public and private sector to support promotion of local content in ICT products and services and insignificant efforts to develop

mechanism to promote the use of Kiswahili in electronic services for transformation of Tanzania into knowledge society.

1.1.5. Cooperation and Collaboration

The Government of Tanzania recognizes the benefit of regional and international collaboration and cooperation in the area of ICT. It has therefore maintained strategic cooperation at regional and international levels. For the past seven years of NICTP 2016 existence, Tanzania has been in the forefront in regional integration initiatives championed by AU; and other initiatives under the Southern African Development Community (SADC); EAC. The collaboration frameworks between the Government and the Private sector have been developed. These include a number of bilateral agreements more and 8 Memorandums of Understanding (MoUs) between the Ministry and other national and international organizations. The efforts have increased Tanzania's contribution in the region especially step forward linking with other landlocked countries which are not connected with submarine cables. The successes attained in ICT in terms of infrastructure, human capital need to be shared with others regionally and globally for sector development through realignment of sector policies.

Tanzania in the last decade has strengthened its cooperation and collaboration with the International Telecommunications Union (ITU), African Telecommunications Union (ATU), Commonwealth Telecommunications Organization (CTO), International Telecommunications Satellite Organization (ITSO) and Regional African Satellite Communication (RASCOM), amongst others. The benefits realized through these collaborations include: sharing knowledge and experience; enhance human capital and expertise; finance ICT initiatives; creation of a network for information society; harmonization and realignment of policies; and expanded market for ICT services and products.

Despite these achievements, there are challenges that need to be addressed such as need for strengthening the country's negotiation capacity and enhance collaboration of Tanzanians with other nations to promote local innovation, knowledge transfer and FDI as well as absence of mechanisms to strengthen the country's negotiation capacity and enhance collaboration of Tanzanians with other nations to promote local innovation, knowledge transfer and FDI. Other challenge is minimal involvement of private sector to expand the mutual benefits.

1.1.6. ICT Legal and Regulatory Environment

The different types of technology used by private and public organizations in their daily services led to the rise of increasing of ICT regulations and best practices for establishing an ICT regulatory compliance program. In order for Tanzania to implements it National ICT Policy 2023 it needs to have its regulations to enforce compliance on its ICT service providers in all private and public sectors by monitoring changes across ICT regulatory landscapes in relevant jurisdictions, implementing controls and measures address such requirements. In technology.

Organizations seek various ways to optimize costs of technical infrastructure and information systems. As a result, these organizations will consider:

a) Cloud-based solutions to facilitate access to applications and services;

b) Secured Virtual Private Network (VPN) services to enable employees to connect to an organization's internal networks and consequently, access its applications and services;

c) Software Defined Network (SDN) to manage and optimize network infrastructure elements; and

d) Online platforms and e-commerce to offer their services.

Other emerging technologies that help organizations fulfil their objectives (e.g. Blockchain and Artificial Intelligence (AI)) are also becoming popular. At the same time, organizations must maintain a high level of security when using such technologies to prevent security breaches. Remote working has become the norm across many sectors, including ICT. The significant rise in Tanzania for the number of security menaces and cyber threats is inevitably attracting the attention of many legislators and regulators around the globe. This risk has become crucially relevant to every individual and organizations alike.

In Tanzania several laws and regulations have been enacted and reviewed in order to cope with the growth of technologies such as Cybercrimes Act, Personal Data Protection Act, the Law of Evidence Act, the Electronic and Postal Communications Act in order to combat cybercrimes issues and cyber security attacks.

It is evident that the legal and regulatory environment is an important aspect in the promotion of ICT. There is no doubt that the current development and use of ICTs especially e-commerce and e-transactions globally is posing some socio-economical and legal challenges in developing countries like Tanzania. Therefore, as of now, there is a great need of the ICT Act. There is therefore a high need for comprehensive, technologically neutral and dynamic policy, legal and regulatory framework to address issues of ICT legislation.

A typical ICT regulatory compliance includes:-

a) Conducting a thorough risk assessment to identify and prioritize key areas of concern (e.g., data protection and privacy, information/cybersecurity);

b) Identifying all applicable laws and regulations;

c) Assigning internal stakeholders who shall become risk owners;

d) Creating a compliance management steering committee to oversee the implementation of the program (usually composed of the executives of "key department" and led by CEO);

e) Reporting regulatory compliance issues to a steering committee on a regular basis (e.g., quarterly reports);

f) Developing all relevant documentation (e.g., policies, procedures, guidelines, etc.) and communicating it to concerned employees;

g) Preparing training material for employees to enhance their awareness level on relevant regulatory topics;

h) Developing and enforcing internal processes to ensure that proper controls and measures are to be implemented in order to address underlying regulatory requirements (this includes, for instance, incorporating privacy and security by design approaches into the company's product development process);

i) Developing a process to interact with relevant ICT regulators for reporting security and data privacy-related breaches (as deemed necessary by applicable laws and regulations); and

j) Carrying out compliance audit reviews to assess adherence to internal processes and identified requirements

1.1.7. ICT Security, Safety and Standardization

The policy had successfully influenced establishment of secured environment that builds confidence and trust in the use of ICT devices and services for public needs such as the Government Enterprise Service Bus (GovESB), where by MDA`s share collected data. Due to confidentiality demands on the data exchanges there were needs to enhance protection of the national critical information infrastructure through the introduction of national Public Key Infrastructure that govern exchange of information between parties. The NICTP 2016 had no provision to guide its establishment and thus jeopardized its development to date.

Among the achievements of The NICTP 2016 on promoting safety in the use of ICT products and strengthening quality control and standardization in the ICT industry had brought attention to formulate a ministry specifically responsible for ICT and related matters in the year 2020. Other achievements include establishment of Personal Data Protection Act, Cybercrime Act; these are legal mandate meant for facilitate support of specialized ICT services in the country. Notwithstanding to those, the policy had had no provisions on it to support establishment of guiding frameworks that operationalized the Act accordingly, rather than utilizing government best practices on dealing with likely matters. In most cases introducing best practices on technological development, research and innovation had driven back the pace of technological transformations.

1.1.8. ICT Sector and Industry Development

Government recognizes the ICT sector as both an enabler and driver of the economy (% GDP of an average of 1.5% in past five year), established a stand-alone ICT Ministry in 2020. The Ministry consist of three core separate unit to cater for System Development, Infrastructure Development and Cyber Security. Moreover, understanding the role of R&D plays in development of the sector 16 MoUs have been entered between e-GA and 16 Higher Learning Institutions. Revitalizing of the ICT Commission to encourage and collaborate with other stakeholders to conduct ICTC Research for sustainability of ICT

industry. Utilizing COSTECH strength, various research has been conducted in the area of ICT and nurturing of start-ups in the ICT arena including free cost resources so as to support the innovators to come up with new ICT solutions. Government involved the Private Sector to establish Digital Economy Framework which lies foundation of collaboration between private and public.

In spite of the progress made, there are challenges in this area which include: Insufficient linkage between the Institutions responsible for R&D, Innovation and Entrepreneurship; lack of Fund to support infrastructures for R&D; flimsy or lack of regulatory body for R&D; uncoordinated funds to support R&D and innovators; little or no strategic interventions to promote development and use of emerging technologies to accelerate the growth of digital economy; no linkage among; e-GA, COSTECH, ICTC and other related R&D Institutions; Inadequate comprehensive collaboration framework between Government, Private Sector and Higher Learning/Training Institutions in ICT Development; Insufficient protection of Intellectual Property rights.

1.1.9. Productive Sectors Development

Development of any nation depends much on effective and modern productive sectors especially agriculture, tourism, natural resources (e.g. minerals, oil and gas), energy, manufacturing and financial services. Currently, ICT has played a major role in supporting these productive sectors. The role that ICTs can play in improving productivity in the key productive sectors of the economy. The Policy stated Government's commitment to encourage all productive sectors to incorporate ICTs in their development plans as well as its commitment to promote and support the implementation of nation-wide ICT systems for rural development and agriculture sector development activities. In recognizing the role of ICT to support these sectors; the Government has undertaken various efforts to ensure ICT continues to support development of productive sectors such as Agriculture sector where by Systems like Agriculture sector stakeholders Database; Farmers Registration System (FRS), Agricultural Routine Data System (ARDS); Agriculture Trade Management Information System (ATMS); Agriculture Sector Stakeholders Registration; M-Kilimo have been established and work in place as well as in livestock sector Mifugo Integrated Information System (MIMIS).

One of these efforts includes creating enabling environment that facilitate promotion of financial inclusion. Furthermore, Government has invested in National ICT Broadband Backbone (NICTBB) which has the potential to provide affordable broadband to productive sectors.

A competitive production and trading system has been established through existing digital technologies and enabled the creation of dynamic value chains and provide a reliable market for production and trading in the primary sectors of agriculture, livestock, forestry and minerals extraction. In the agricultural sector through ICT services farmers have been accessing information and knowledge about weather, rainy season, prices of agricultural implements from the factories and prices of agricultural produce in the markets.

However, the use of ICT in the productive sector faces some challenges including:-

a) Uncoordinated ICTs Systems in productive sectors causing inadequate integration of ICT systems in productive sectors;
b) Need of guideline for development of ICT systems for both Public and private;
c) Need to develop and execute frameworks for ICT and digitalization solutions to support business efficiency, productivity and competitiveness in all value chains;
d) Develop Sectorial Integrated Service Bus for exchange of information;
e) Establishment of National Registration Database for Identification,
f) Registration and approval of all Information systems that has National Interest in concern of data collection from citizen;
g) Diversified Standards in established ICTs system;
h) Inadequacy information security in developed ICT systems;
i) Need for strong linkages between public and private sectors of economy;
j) Limited capacity building programmes to Strengthen ICT skills among the experts;
k) Lack or limited strategy to strengthen ICT competencies based on professional certifications;
l) No strategy to strengthen ICT skills training to special groups (people with special needs, women, girls, youth and children) to access and use ICT resources;
m) No developed Sectorial Integrated service Bus for exchange of information;
n) Lack of digital Registration Database for Identification, registration and approval of all Information systems that has National Interest in concern of data collection from citizen;
o) Lack of strong linkages between the public sectors and private sectors of economy;
p) Uncoordinated ICTs Systems in productive sectors causing lack of system integration, poor standards of ICT system and minimum availability of data and Insufficient information security in developed ICT systems;
q) Minimal level integration of ICT component in other productive sectors' policies, laws and regulatory systems and
r) Demand for use of more Enabling technologies are inventions or innovations that can be applied to drive radical change in the capabilities of a user or culture such as blue economy

1.1.10. Crosscutting Issues

1.1.10.1. Gender and Social Diversity

For now, Tanzania has enabled Access to ICT in some of different levels such as in government institutions by allowing use of ICT products and goods as the Government has recognized the gender and social diversity initiatives in Tanzania; such as ICT curricular for different levels of education including primary, secondary, vocation and higher learning institutions and ICT gadgets for people with special needs has been provided. Even though the Government initiatives are enforced, still population in rural and urban underserved areas is experiencing poor technology or communications, shortage of basic infrastructure, high costs of ICT deployment and unfamiliarity with ICTs. These barriers pose greater challenges to social diversified groups who are more likely to be illiterate; do not understand

English; lack opportunities for training in ICT and lack equipment that address their needs. Other challenges include unbalanced domestic responsibilities, cultural restrictions on mobility, lesser economic power as well as lack of relevant content for their needs which marginalise them from participating effectively in the ICT issues. With the new National Policy of ICT gender and social diversity challenges will be taken cared if not all at least being reduced.

1.1.10.2. ICT for Disaster Management

The Government is prepared on management of disasters that lead to disruption of the functioning of the society. The use of ICT especially in critical information infrastructure is an important step towards reducing impacts from disasters, correctly analysing the potential risk and identifying measures that can prevent, mitigate or prepare for emergencies. Efforts done by the government include strengthening of meteorology operations in the country; collaboration with the international community in building capacity for prevention, mitigation and preparedness in using ICT for management of disaster. Despite these efforts, there are still challenges to be addressed such as lack of national framework for use of ICT facilities for disaster management; inadequate capacity in using ICT to handle disasters with a nature of critical information infrastructure in both areas.

1.1.10.3. Good Governance

ICT provides concrete opportunities for local and central governments to improve their performance in terms of transparency, accountability, citizen participation and decentralization. At the same time, it offers citizens to know the services they are supposed to/or receive from their contribution through taxes. The mainstreaming of ICTs within planning and design of development strategies helps to strengthen the establishment of efficient, effective and transparent governance systems. Online tools can significantly improve the rendering of services and information flows from administrations to their constituencies; communication among administrations and citizens can be enhanced and ICTs offer unique opportunities for broadened citizen involvement and participation in the decision-making process. Various endeavours were made by the Government to ensure that ICT supports good Governance. These include provision of online services which increases transparency, accountability, citizens' participation, and reduced corruption. However, there are challenges that need to be addressed which include mainstreaming the use of ICT in government operation in order to increase government accountability, transparency, and reducing corruption.

CHAPTER TWO

POLICY RATIONALE

Tanzania is unveiling its National ICT Policy of 2023 to accelerate its digital transformation journey as an implementation continuation of the National ICT Policy of 2016 (NICTP 2016) which has been operational for about seven years. The NICTP 2016 was a built on the review of the National ICT Policy of 2003 (NICTP 2003). The latter provided a national framework for ICTs to contribute effectively towards achieving national development goals and transform Tanzania into a knowledge-based society through the application of ICT. It facilitated the development of the country's ICT industry over a span of thirteen years, and created a broad range of economic and social activities that led to job creation, enhanced productivity, and efficiency. During this period the industry witnessed major technological changes that resulted to the increased contribution to the Gross Domestic Product (GDP) from 1.5% in 2004 to 2.4% in 2013.

The NICTP 2016 recognized the crucial role that the development, implementation and exploitation of ICTs in the economy and the society can play towards the achievement of the nation's social-economic goals as enshrined in the National Development Vision 2025. It includes measures and mechanisms to accelerate ICT infrastructure development; broadband penetration and access; strengthening national capacity in protection of cyber space users; enhancing management and efficient utilization of the spectrum and other scarce ICT resources; promoting business process outsourcing industry; enhancing innovation in e-services; and promoting local content development and hosting. Other areas are establishment of frameworks for e-waste management, promoting the use of ICT for disaster management and other crosscutting issues.

The NICTP 2016, through its Implementation Strategy 2016/17 – 2020/21, has registered a number of achievements that have enabled citizens to benefit from the digital revolution. Some of these include development of digital-based services in finance, health, education, agriculture, public administration, judicial services, market information and many more. As of early 2022, over 27,912 km of OFC had been laid, of which 8,319 km were laid by the Government. Several measures have been taken to ensure all stakeholders, including the private sector and the public at large, benefit from access to these public assets so as to promote socio-economic development. A number of stakeholders including the Ministries, Departments and Agencies (MDAs), Local Governments Authorities (LGAs), Public Institutions, Development Partners, Mobile Network Operators (MNOs) and others, work closely to take advantage of available digital opportunities such as the Fintech, Digital wallets, Citizen inclusiveness in the Digital Economy, Money Kiosks, Broadband penetration and various Digital Skills. However, most of the targets in the Implementation Strategy 2016/17 – 2020/21 were short-term, some targets were realized, and others needed more time to be achieved.

With the need to review the Implementation Strategy 2016/17 – 2020/21 and for the country to harness the power of digital transformation by using emerging new digital technologies such as Artificial Intelligence, Machine Leaning, Big Data Analytics, Internet of Things, Robotics, Virtual Reality, Augmented Reality, 3D Printing, Space Technologies and others, it is imperative to accelerate the digital transformation agenda for the better future of the nation and prosperity. Moreover, issue of blooming data platforms, cross border data flows, and digital trade/e commerce requires a special attention to create some proper data governance management mechanisms between public and private, strengthening the security of national cyber space, nurture the ICT talents, and promote innovations to ensure that the ICT industry responds to the question of unemployment.

Development of the new NICT Policy 2023 has been necessitated by the need to accommodate new and changing ICT requirements of the country; address challenges emerging from the rapid change and advancement in the fields of ICT, tap on the potentials of new and emerging digital technologies to address technological, economic, social, and developmental challenges; prepare and venture into the Fourth and the Future Industrial Revolutions; strengthen the use of ICTs to foster economic growth and job creation; build an enabling environment for a robust business environment for the ICT industry.

A review on the NICTP 2016, revealed major achievements in digitalization both in the Public and Private Sector that has enabled efficient service delivery to Citizens. However, in an effort to accelerate further achievements in digital transformation across all productive sectors and the public at large, there is a need to have in place policy frameworks geared towards delivery of digital services that are people centric.

Further review was also made on the National Telecommunication Policy (NTP) 1997. Since its formulation in 1997 the policy is yet to be revised to uptake the development and substantive development in the telecommunication Sector. Owing to the ever changing and rapid development in the Telecommunication and its integration in the economy National Telecommunication Policy (NTP) 1997 was also reviewed to determine its relevance; effectiveness; efficiency; and sustainability. The review established the applicability of the NTP 1997 in this era where information and communications technologies (ICTs) have significantly evolved and made big changes in society such as emerging technologies it is eminent to reformulate the policy to anchor current and future demands emerging in the policy. The review of NTP 1997 showed that most of the policy issues in the NTP 1997 have become obsolete, and some are no longer applicable due to significant changes in telecommunications technologies. Furthermore, the National ICT Policy 2003, which was reviewed in the course of formulating the National ICT Policy 2016, covered most of the areas that are still applicable, making the NTP 1997 redundant. Therefore, NICTP 2023 revoke NTP 1997 to anchor current and future demands of telecom sector.

The NICTP 2023, envisions to have a transformed and competitive digital economy that embraces innovation for national development. The Policy will focus, among others, on: development of digital infrastructures; strengthening of data governance and data sharing among institutions through development of common/unified digital infrastructures/platforms; creation of secured digital space; digital innovation and entrepreneurship; digital skills and

talent management; digital services development; creation of enabling policy and regulatory environment; and other cross-cutting issues.

2.1. Policy Vision, Mission and Objectives

2.1.1. Vision

A strong, inclusive and resilient ICT environment for supporting a competitive upper middle-income economy

2.1.2. Mission

To transform Tanzania into a digital-enabled knowledge-based economy through effective, innovative and sustainable development and utilisation of digital systems, solutions, and services for national development.

2.1.3. Objectives

2.1.3.1. *Main Objective.*

To develop effective, innovative and sustainable ICT enabling environment for utilisation of digital systems, solutions, and services for national development.

2.1.3.2. Specific Objectives

(i) To realize reliable, affordable, accessible, secure, interoperable, fast and sustainable digital infrastructure for national connectivity to facilitate universal access;

(ii) To significantly increase the number of Tanzanians that own ICT hardware/devices;

(iii) To promote development of ICT in space technology for provision of space delivered services;

(iv) To ensure compliance of data standards that govern data interoperability, security, resilience and drives/propel digital transformation;

(v) To have secured cyber space environment that builds confidence and trust in the use of digital technology;

(vi) To promote research, innovations for development and support of home-based digital entrepreneur's and technologies;

(vii) To strengthen research, development and innovation ecosystem in relation to industrial development;

(viii) To attract and manage skilled and talented digital professionals for lifelong digital technologies;

(ix) To foster development of demand driven digital services for efficient and effective service delivery;

(x) To have a harmonized legal and regulatory environment for digital transformation and development to flourish;

(xi) To promote sustainable digital technologies for environmental conservation;

(xii) To promote development of digital technologies that foster good governance;

(xiii) To facilitate fully participation of gender and social diversity into digital technological development;

(xiv) To promote digital technological development in disaster management; and

(xv) To strengthen and encourage regional and international collaboration for national development through technologies.

(xvi) To ensure that telecommunication services are provided in a competitive manner.

CHAPTER THREE

POLICY ISSUES, OBJECTIVES, AND STATEMENTS

3.1. Digital Infrastructures

Digital infrastructure in this context covers soft and hard ICT infrastructures. Digital Infrastructures are the main foundational pillars to facilitate the development, implementation and use digital systems, products and services. They include Telecommunications fixed and optical wireless communication networks (OWC); broadband and high-speed networks; terrestrial optic fibre networks; fibre over power lines; submarine cables; satellite communication; mobile communications; Internet Exchange Points (IXPs); Postal infrastructure; Digital Terrestrial Broadcasting; Data Centres; Tele centres/ict Hubs, Digital and smart devices; and Digital Platforms.

Deployment of digital infrastructures requires to be done in a holistic approach to accommodate future needs and provide digital capabilities that will meet ever-growing demand for data consumption. To achieve Digital infrastructure reliance plans requires a strong tie of collaboration between Government and Private Sector to enable universal access to quality digital infrastructures, high speed broadband infrastructures and the adaption of conducive legal and regulatory frameworks that will provides investment opportunities to drive digital transformation. Digital infrastructures provide foundations of growth and contribution of ICT to national development. Robust digital infrastructures will close socio economic gaps in underserved and rural areas through increasing the access to vital information and create areas for productivity.

Despite the achievements made by the country to develop the digital infrastructures, they are not adequate to provide efficient and affordable digital services. This Policy therefore intends to lay foundations on regulatory interventions for universal quality, affordable, and reliable broadband connectivity and other digital infrastructure.

3.1.1. Policy Objective

To ensure reliable, affordable, secure, interoperable, and sustainable digital infrastructure for universal accessibility.

3.1.2. Policy Statements

The Government shall:

(i) Increase sufficient funding for investment of interoperable, affordable and secure broadband infrastructure for universal access;

(ii) Strengthen integration in planning and implementation of infrastructure projects;

(iii) Encourage establishment of factories for manufacturing electronic devices, equipment, spare parts, tools and other telecommunication materials;

(iv) Establish the National Service Bus for data exchange between public and private stakeholders;

(v) Facilitate open access for the National ICT Backbone Infrastructure and its services;

(vi) Encourage investment for digital infrastructure in submarine, metro and last mile connectivity;

(vii) Promote Spectrum sharing among mobile network operators (MNOs) to increase efficiency;

(viii) Develop a business model for duct in last mile and Metro infrastructures;

(ix) Ensure sustainable development and electronic use of national addressing and postcode systems;

(x) Facilitate accessibility of free internet/data connectivity in public areas; and

(xi) Ensure investment in broadband connectivity to neighbouring countries.

(xii) Ensure sufficient access to spectrum resources

(xiii) Ensure standards for infrastructures, devices and quality of telecom services align with international, regional and national requirements

(xiv) Encourage investment for digital infrastructure (fiber) to the customer premises and increase fiber network connectivity;

3.2. Data Governance

Data governance is a framework for creating, managing and monitoring data. It includes policies, standards and procedures to ensure that data is accurate, consistent, secure, trustworthy, managed, audited and compliant with all relevant regulations. Data collected from different sources can be processed to produce insights to inform decisions both in public and private sectors.

The Tanzania government has currently digitized its governance systems where data such as personal data and information have been collected. The mandatory sim card biometric registration, the National Identification biometric process, voters' registration, licensing registrations and other several initiatives all add to the personal data collection and usage. By recognizing the importance of Data Management, the e-Government Act, 2019 has included a provision for electronic data management, data sharing and exchange and data standards. On data sharing initiatives, the Government, through e-Government Authority has developed the e-Government Service Bus (eGSB), an infrastructure for the exchange of data between basic base registries and other authoritative government data sources.

On 27th November, 2022, the Parliament of Tanzania passed the Personal Data Protection Act 2022, Act No. 11 of 2022 (PDPA). Before enactment of the PDPA 2023, there had not yet been a comprehensive legislation on protection of private information or data. However, there were few data protection legal provisions that were found in varying degrees in some sector related legislations, especially in the banking, electronic, and telecommunications sectors, as well as penal in statutes. PDPA provides detailed provisions on personal data protection geared towards protection of personal data. The Act places restrictions upon personal data collectors and processors, and establishes a Personal Data Protection Commission (PDPC) to administer and enforce the provisions of the PDPA 2023.

Despite the mentioned achievements, the potential of big data generated from various ICT systems has not been utilized effectively. Also, the available information from the analyzed are not used in decision making boards. Data Governance Frameworks are required to organized unstructured deployment of ICTs across the Public Service, and the need to enforce standards in all players in helping the country tackle its digital transformation challenges successfully.

3.2.1. Policy Objective

To promote the use of established standards and guidelines in collection, storage, and sharing of electronic data and build capacity for data processing and use.

3.2.2. Policy Statements

The Government shall:

(i) Establish mechanism for data privacy, protection and management;

(ii) Establish data mining and collection standards to enhance data confidentiality, integrity, availability, authenticity and integration;

(iii) Build capacity in data science and big data analytics,

(iv) Promote and encourage information culture and data use to generate knowledge and inform decisions;

(v) Establish mechanism to facilitate data residency and resilience;

(vi) Establish data governance collaboration framework among data generators;

(vii) Strengthen utilization of DotTz domain; and

(viii) Promote and support development of online Kiswahili contents to promote Kiswahili in the global online space.

3.3. ICT Systems Security

Cybersecurity on all forefronts (software and hardware) has been improved drastically in Tanzania since 2016 apparently due to the country increased compliance to the five pillars (Legal Measures, Technical Measures, Organizational Measures, Capacity Development

and Cooperation) of Global Cybersecurity Index (GCI). Tanzania has been ranked 02nd in cybersecurity portfolio in Africa by 2020.

Tanzania's prominence in the cybersecurity portfolio is attributed by the existence of an adequately well-functioning national cybersecurity legal and institutional framework comprising of: establishment of the National Computer Emergency Response Team (TZ-CERT) established through the Electronic and Postal Communications Act (EPOCA), 2010; establishment of the Central Equipment Identification Register (CEIR); establishment of the Cybercrimes Unit under the Tanzania Police Force; establishment of e-Government Security Operation Centre (e-GSOC); development of the National Cybersecurity Strategy; enactment of the Cybercrimes and E-transactions Acts in 2015 and enactment of the Personal Data Protection Act of 2022. The country's cooperation with international and regional organizations in cybersecurity also contributed to success in cybersecurity within the country. The country has continued to raise awareness to law enforcement agencies, judiciary, policy makers, academia, students' communities and general public on good use of ICT and how to deal with matters related to cybercrimes.

Of late, the increase in users of cyber space taking into account the vast number of system integrations through the widely used API`s has empowered people and organizations with increase of access to data that transforms our daily lives locally and/or globally. This trend has portrayed a potential value of the cyber space and in due course opened a pandora for illicit people that has caused increase in the size and frequency of cyber incidences and threats than before. With this situation at hand, responding to cyber-attacks and the threat landscape has been challenging considering the nature and pace of emerging cyber threats, volatility of the cyber space and shortage of skilled manpower that is also attributed by the high costs of training and retaining talents. Cyber leaders are increasingly finding themselves in a precarious position as challenges in the cyber space continuously escalate. The Government is however determined to mitigate and continuously improvise so as to assure citizens a secured, reliable and trusted cyber space.

3.3.1. Policy Objective

To have a secure, safe and trusted ICT infrastructure, systems and services

3.3.2. Policy Statements

The government shall:

(i) Strengthen security governance of ICT infrastructures, systems and service;

(ii) Collaborate with stakeholders to strengthen the security of digital environment in the country;

(iii) Establish National Centre of Excellence for the security of ICT infrastructure, systems and service;

(iv) Strengthen cybersecurity capabilities to detect, respond to and combat existing and anticipated online threats;

(v) Strengthen regional and international collaboration in ICT security;

(vi) Enhance capacity building and awareness to adapt to ubiquitous threats and technological changes; and

(vii) To ensure a safe cyberspace for all and protection of vulnerable groups against online abuse.

3.4. Research, Development, Innovation and Entrepreneurship (RDIE)

Research and Development, Innovation and Entrepreneurship (RDIE) in ICT is important to achieve sustainable development and support growth of the digital economy. ICT Research is necessary for development and for Tanzania to leverage opportunities emerging from technological developments in the digital age.

The development of entrepreneurship and innovation has increasingly become important to the growth of digital economy. Digital innovation is playing an integral role in creating new business models, creating new jobs and being used in every sector that uses ICT as an enabling tool for development. Digital infrastructure and services development positions Tanzania as a home to a digital innovation scene, with youth and entrepreneur's eager to take advantage of the growing economy and population. Tanzania's economic performance is characterized by a strong GDP growth rate averaging 6.6% over the past 20 years1. Linked to this is also good progress in human development over the last 30 years. Net enrolment in primary school has increased from 51% in 1990 to 95% by 2023. This positions Tanzania as a potential hub for innovation and entrepreneurship across the region and Africa. Entrepreneurship and digital innovation are increasingly critical aspects in digital economy growth of Tanzania to ensure sustainable economic growth. Digital Innovators and Entrepreneurs are at the forefront of this growth, driving innovation, creating new business models, addressing socio-economic challenges, generating new job opportunities, and contributing to Tanzania's economic growth.

The overall innovation ecosystem shows that Tanzania experienced a significant 15% increase in start-ups companies rising from innovation reaching 673 in 2022. This growth is driven by a rising digital technology access, cultural shift and entrepreneurial spirit, especially among youth pursuing self-employment as a career choice. The Professional Services and Consulting sector, including software as a service, leads with 25.9% of start-ups, followed by AgriTech (16.6%) and Fintech (7.2%). Emerging sectors include E-commerce/Retail Tech (6.6%) and health tech (5.3%). Dar es Salaam main commercial city became the top innovation start up hub hosting 66.56% of all start-ups in Tanzania. Arusha secured second place with an increase from 6% in 2021 to 8.13% in 2022, while Mbeya also grew from 2.6% to 4.22%. The remaining 21.09% of start-ups are based in different cities nationwide. In addition, the Tanzanian innovation ecosystem is contributing to the economy through job creation and innovation creating 89,509 jobs in 2022 respectively

signalling a thriving opportunity for entrepreneurs, innovators and promoting economic growth.

Despite the achievements, Tanzania is facing some challenges which hinder growth of research, development and innovation in the ICT scene. Such notable challenges include lack of robust formal financing and private investment ecosystems leaving most digital innovations to thrive on personal savings and family support. Reliance on development partners and informal funding sources stifles growth and innovation, highlighting the need for diverse and robust investment networks to unlock entrepreneurs' full potential. Failure to secure capital due to challenges spanning to technical knowledge, collateral guarantees, and a highly competitive equity landscape, lack of sufficient training programs on corporate governance and entrepreneurial financing to boost success and attract diverse financing opportunities. Growing demand for digital innovation spaces poses higher demand for supporting infrastructures. Lack of affordable and quality R&D facilities also hinders innovation and competitiveness. Even more, access to affordable internet is also a challenge to digital innovation growth despite government efforts to bolster internet infrastructure and promote digital growth and lastly compliance to ex-post regulatory frameworks is also a challenge to growing digital innovations.

3.4.1. Policy Objective

To promote and encourage research, innovation, development, and entrepreneurship in digital governance, infrastructure, systems and services in building a strong digital economy.

3.4.2. Policy Statements

The Government shall:

(i) Establish a reliable funding scheme to facilitate research, innovation and development of digital systems, solutions and services.;

(ii) Facilitate and promote the establishment of digital innovation hubs for development of digital solutions;

(iii) Collaborate with research institutions and private sector to establish ICT parks to digital innovation and entrepreneurship;

(iv) Promote commercialisation of digital innovations for effective participation in the digital market place and job creation;

(v) Facilitate market promotion and capital investment in digital innovation;

(vi) Promote awareness of Intellectual property rights and patent rights to local digital innovators; and

(vii) Promote collaboration between academia and the ICT industry.

3.5. Digital Skills and Talent Management

ICT Human capital is vital to champion digital economy growth of a country. The global transformation towards the digitally enabled industrialized world, the 4th industrial Revolution, requires exploitation of digital technologies and high – tech systems. The pace of digital technologies advancement requires development of knowledgeable and skilled ICT experts capable to leverage the evolving digital technologies for social and economic growth. To date, a National ICT Professionals registration and Certification Framework has been developed aiming to improve ICT professional by ensuring ICT professionals practice by adhering to highest professional standards. Furthermore, the framework envisages to enhance the quality of ICT human resources and professional services, raise the profile of the ICT profession, attract more young people to join ICT profession and advance Tanzania's position as a leading knowledge-based society. Until 2022, several ICT Professionals and practitioners have been recognized and others registered. More than twenty ICT Professional specialization areas of practice in Tanzania have been identified and respective experts empowered with various skills development programs.

Despite the success in digital skills development, there have been challenges which hinder the pace skills development in ICT which include insufficient training centers for advanced digital skills development causing high cost of access to available training services. Lack of legal enforcement of professional registration and development has also been a setback on ICT human capital development in Tanzania. Partial ICT governing structure that issue directives and governance on the proper management of ICT professional and related matters

3.5.1. Policy Objective

To enhance investment in ICT human capital and digital skills for the development and effective use of digital technologies and solutions.

3.5.2. Policy Statements

The government shall:

(i) Promote integration of digital skills development in formal education systems;

(ii) Facilitate competency advancement of ICT experts for in-demand ICT and soft skills for sustainable development of the sector;

(iii) Ensure conducive environment to attract investments in developing state-of the-art ICT training centres;

(iv) Ensure effective use of ICT and digital solutions in teaching and learning at all levels of the education system;

(v) Attract and retain skilled most in demand ICT professionals;

(vi) Promote and invest in digital citizenship to the community;

(vii) Strengthen the coordination and registration process of ICT professionals; and

3.6. Digital Services Development

Digital services contribute to online content generation, forming a significant segment of the digital economy. E-commerce (e.g., DukaDirect and Sarafu), e-business (i.e., G2B, G2C, C2G, B2G C2B, B2C, B2B, etc., e.g., e-Government services delivery platforms such as salary slip portal, GMS, e-project, e-Vibali, e-passport, e-NIDA), and online radio and televisions are the major developments in content generation in the country.

However, the generated content is insufficient to cater to users' needs. This shortage is attributed to low digital literacy among the stakeholders. Also, no legal framework is in place to guide the regulation of e-commerce. Inadequate digital identity (ID) is a barrier to digital transformation. Penetration of smartphones is as low as 27% by 2022, posing a challenge for users in accessing online content, considering that smartphones are preferred to other devices like computers, tablets and feature phones because of their portability and efficiency. Such low penetration is caused by the affordability of smartphones. As a result, most disadvantaged people, such as people with disabilities, elders and women, cannot afford a smartphone. Also, the disposable income of people from rural areas does not allow them to afford a smartphone. Besides, most user devices, such as smartphones, are not friendly to special groups there are few ICT skills training opportunities for people with special needs that results to challenges to the use of devices, such as smartphones and computers for accessing, using and creating digital content. These are the challenges that need to be addressed to realize the full contribution of digital services in the digital economy and prosperity of the sector.

3.6.1. Policy Objective

To foster the development of demand-driven digital services for efficient and effective service delivery.

3.6.2. Policy Statement

The government shall: -

(i) Promote the development of digital services in public and private sectors;

(ii) Ensure financing mechanisms/scheme for affordability and accessibility of computing devices and digital services to marginalized groups in rural and urban underserved areas;

(iii) Establish a legal and regulatory framework to regulate e-commerce;

(iv) Ensure integration of digital systems and services with the National Digital Identification system and physical addresses;

(v) Ensure participation of people with special needs in the digital ecosystem;

(vi) Promote the development of user-friendly digital services for people with special needs; and

(vii) Ensure ethical and quality validation of ICT products and services introduced in the local market.

(viii) Ensure effective participation of the private sector in developing ICT solutions and delivering digital services.

3.7. ICT Legal and Regulatory Framework

The development of ICT Sector requires the transformation in legal and regulatory framework which enforce the implementation of National ICT Policy 2023, In order for the government to implement National ICT Policy 2023 it needs to have its Legal and Regulation to enforce compliance on its ICT service providers in all private and Public Sectors by monitoring changes across ICT regulatory landscapes in relevant to jurisdictions, implementing controls and measures to address such requirements. Since execution of the National Telecommunication Policy 1997 and National ICT Policy 2016 there have been a quite several achievements such as introduction of legal and regulatory framework which support Digital Services which are Personal Data Protection Act 2022, EPOCA revised 2022, Law of Evidence Cap.6 revised Edition 2019, The Electronic and Postal Communications (Radio Communications and Frequency Spectrum (Amendments) Regulations 2022, The Electronic and Postal Communications (Access, Co-location and Infrastructure sharing (Amendments) Regulations 2022, The Electronic and Postal Communications (Digital and Other Broadcasting Network and Services (Amendments) Regulations 2022, The Electronic and Postal Communications (Licensing) (Amendments) Regulations 2022, The Electronic and Postal Communications (Online Content) (Amendments) Regulations 2022 as well as adoption of International Legal Instruments to support cooperation in addressing ICT issues such as signing MALABO CONVENTION and Roaming in East Africa Community (EAC) and Southern African Development Community (SADC) regions.

Other achievements are establishment of Commissions and Authorities which are Data Protection Commission in 2023, ICT Commission in 2016, establishment of e-GA in 2019 as well as increase of investment in ICT and adoption of emerging technology such as 5G.

Despite the mention achievement there are still existing challenges which are absence of ICT Act that govern specific ICT issues, limited capacity of ICT institutions to implement Laws and regulations govern ICT and lastly are Inadequate of awareness of existing laws and regulations with regards to ICTs issues.

3.7.1. Policy Objective

To strengthen legal and regulatory environment for ICT development in Tanzania.

3.7.2. Policy Statements

The Government shall: -

(ix) Strengthen legal framework that governs the development, acquisition, utilization, and coordination of ICTs.

(x) Develop ICT Act;

(xi) Create awareness of existing laws and regulations governing the ICT sector;

(xii) Ensure compliance of ICT related issues to existing laws and regulations;

(xiii) Create conducive legal environment to attract ICT investments and support start ups;

(xiv) Strengthen the powers and capacity of Consumer Consultative Councils to protect consumers' rights; and

(xv) Create conducive environment to promote local investors to provide reliable, affordable an secured internet services at Regional and Districts levels.

3.8. ICT in Space Science and Exploration

Space exploration refers to outer space investigation by means of sending specialized crew members to outer space so as to increase knowledge of community planning. The country `s aspiration to utilize outer space for national development has been inspired by global conventions that encourage capitalization of space technology as alternative source of digital revenues. Digital space exploration focuses to provide an ideal platform to support the development of a knowledge-based digital economy. Globally, space technologies and application has benefited the process of development into indigenous space technology and applications. Satellites and missions in space ICT technologies get betters every day as new devices get developed for space exploration.

Various Government institutions and the private sector have been using services derived from space activities especially satellite services in carrying out their duties. These include various institutions from health, education, communication companies, defence and security agencies. However, for Tanzania to attain its presence in the space industry map requires establishment of conducive environment to govern, invest and promote effective and efficient use of space technologies. Currently, there is no Tanzanian investment in human activities that take place in space technologies a situation that deprives the country of the opportunity to be an important stakeholder in space and build a space economy. On other hand, private sectors around the world have seen opportunities and are rapidly investing in this sector makes it so important for need of the Government to set the foundations and enabling environment to get benefits of space technologies for socio economic development.

The importance of digital platforms and services through space exploration is very critical. ICT technology plays a big role in space exploration since it is very useful in gathering data collected by probes, ensuring securities, detecting natural disasters, weather forecasting, precision agriculture and food security, telemedicine and planning land scaping. Investment in space activities in this country has a great opportunity due to the political motivation, peace stability and strategic geographical locational that it is presence of the sea and proximity to the equator which are suitable for space activities.

Therefore, this policy intends for creation of an enabling environment for development of space technologies in the country, to attract more private sector investment in this area,

strengthens international cooperation, facilitates the transfer of technology and knowledge in the country. Moreover, Presence of central body to coordinate, manage, conduct researches and develop space activities in the country will enable the country to take steps towards large-scale use and human activities in space to benefit properly from the space technologies including facilitation to achieve international goals and agreement to attain space economy as one of global sustainable development goals.

3.8.1. Policy Objective

To invest in digital technologies for effective participation in space science and exploration.

3.8.2. Policy Statement

The government shall:

(i) Promote ICT research in space science and exploration;

(ii) Ensure availability of fund to facilitate research and innovation in space technology;

(iii) Promote and facilitate the application of space science and technologies to strengthen ICT and other services; and

(iv) Establish an Agency responsible for Space Science and Exploration.

3.9. Regional and International Collaboration and Cooperation

Regional and International collaborations facilitate development of standardization of standards, codes, systems, and protocols which are essential for ICT sector development. International collaboration offers country's opportunity to share experiences and to set common standards and policies. It is important to maximize participation in relevant regional and international fora in order to accelerate Tanzania full integration into the global information society.

3.9.1. Policy Objective

To effectively participate and contribute in ICT global agenda and development activities.

3.9.2. Policy Statement

The government shall:

(i) Ensure the country participate in strategic ICT agenda at the regional and international platforms;

(ii) Promote and enforce the adoption of international best practices, regulations, and standards governing the ICT industry;

(iii) Promote existing and future markets for Tanzanian ICT products and services;

(iv) Strengthen harmonisation of ICT policies and legal framework across the region; and

3.10. Cross-Cutting Issues

3.10.1. Environment

The rapid changes and advancement in the ICT industry have raised two issues regarding ICT equipment. First, the industry is flooded by ICT equipment which are used in organisations and the community. Second, control of the quality of ICT equipment, which are all imported, has been a challenge because many equipment become obsolete within a short time. As a result, there is an increase of ICT related un-biodegradable wastes (e-waste) which pose serious environmental challenges. The Government has taken some measures to control e-waste and safeguard the environment including the ongoing establishment of 33 e-waste collectors and 3 dismantling e-waste plants. Notwithstanding the initiatives taken, strategic actions are required to strengthen the way the country deals with e-waste.

3.10.1.1. Policy Objective

To strengthen the management of ICT-related waste as an integral part of environmental management system.

3.10.1.2. Policy Statement

The government shall: -

(i) Strengthen quality standards and compliance guidelines for importation of ICT equipment;

(ii) Ensure ICT-related equipment manufactured or imported in Tanzania market meet the acceptable quality standards;

(iii) Establish mechanisms to reduce e-waste;

(iv) Encourage the reuse of ICT equipment and parts by facilitating establishment of refurbishment factories;

(v) Attract investment for e-waste recycling factories; and

(vi) Promote green energy technologies to power digital infrastructure.

3.10.2. ICT for Good Governance and Public Services Delivery

ICT systems, solutions and services provide new opportunities the government can tap on to execute her key functions such as enabling efficient, effective and equitable ways of delivery public services; collecting revenues and expand its tax base; coordinating and implement development projects; improving communication with citizens; promoting and enforcing the rule of law; maintaining order; providing leadership; facilitating and supporting business and ensuring good governance. The use of ICT in public sectors is referred to as e-Government which refers to the use of ICT by government and public institutions to transform the ways the government conducts its cores businesses. For the past fifteen years, the Government has been increasingly adopting and utilising e-Government services

in response to the needs to improve and the dynamics of the ICT industry which has changed the ways individuals, business, organisations, and governments operate and interact. Evidence has shown that e-Government services better delivery of government services to citizens, improve interactions with business and industry, increase openness and transparency in governance and manage public resources. The government is therefore committed to use e-Government services more strategically and objectively to ensure they contribute to national development. Therefore, all policies, strategies, guidelines relating to implementation of e-Government in MDAs and LGAs should align with National ICT Policy Vision

3.10.2.1. Policy Objective

To promote and use ICT systems, solutions and services to foster good governance and delivery of equitable public services.

3.10.2.2. Policy Statement

The government shall: -

(i) Establish e-government policy and its implementation strategy to govern e-Government services and operations;

(ii) Develop and operationalise regulations, standards and guidelines for development and use of eGovernment services;

(iii) Ensure all public institutions develop digitalization strategies in alignment to the provision of the National ICT Policy;

(iv) Establish a framework for information sharing within the government and between the government and the private sector;

(v) Define and establish the governance and management structure of ICT in public institutions;

(vi) Utilise ICT platforms and solutions to strengthen online presence, citizen engagement, transparency and information availability; and

(vii) Strengthen the capacity to prepare quality online contents in the public sector.

3.10.3. Gender and Social Diversity

The development and advancement of ICT presents equal opportunities to both genders (men and women, boys and girls) and special groups (elderly, women, children, people with special needs and youth). However, such opportunities are influenced by socio economic, development, and cultural limitations that exist in our communities which, among other factors, introduce a gender divide and social inequalities. For example, such limitations determine whether different social groups have access to resources; boys and girls have

equal access to education; school environments provide equal support to boys and girls in their learning journey; and places of work provide equal environment to special groups to advance skills, progress in career development, get equal pay and participate in decision making processes. Given the fact that the development of use of ICT are subjected to the structures, systems, traditions and behaviours that exist in organisations and the community, the predominant disparities among genders and special groups are also manifested, hence creating a digital gap/divide. Despite major strides made to improve access to ICT services to special groups , data shows that a significant digital gap still exists in all spheres of our life. Therefore, the government sees the need to set strategic policy commitments to ensure a social and gender-free digital society in which both genders, special groups and social groups effectively and equitably participate in the development, management and use of ICT. Such a digital society will benefit individual citizens, institutions, communities and ultimately contribute to the national development.

3.10.3.1. **Policy Objective**

To facilitate fully participation of both genders and diverse social groups in development, management and use of ICT.

3.10.3.2. Policy Statements

The government shall: -

(i) Ensure diverse social groups and both genders have equal opportunities to participate in the development, management and use of ICT;
(ii) Facilitate and support initiatives focusing on bridging the digital divide between genders, special groups and social groups;
(iii) Promote the development of critical and highly demanded ICT skills among special groups;
(iv) Ensure availability, affordability and usability of ICT devices, systems and services to the diverse social groups.

3.10.4. Disaster Management

The Government through the Prime Minister's office has embarked on the National Emergency **Telecommunication Plan (NETP) which uses calls, SMS and online services that inform citizen in** the time of disaster. NETP is a strategic plan developed to best manage the risk of disaster during the mitigation, preparedness, response, and recovery phase by promoting communication and information sharing across the Government, within the community at risk, and between public and private organizations. COVID-19 pandemic led to the increase in the adoption of digital inclusion in the country including acceptance of new innovation in the e-services.

3.10.4.1. Policy Objective

To encourage the uptake of digital services as a solution to keep the economy on the move during the period of disasters.

3.10.4.2. Policy Statement

The government shall: -

(i) Strengthen the National Emergency Telecommunication Plan to counter disaster threats;

(ii) Ensure availability of digital service equipment in disaster management;

(iii) Promote harmonization of Disaster Recovery Plan and ICT infrastructures development plan to ensure provision of ICT services for emergency and distress situations in all parts of the country (on land, sea, and air); and

(iv) Strengthen international cooperation;

3.10.5. Public Private Partnership

The proposed policy is anchored to boost investment in Public Private Partnership (PPP) in the ICT project by increasing collaboration with public sectors. The challenges which will be addressed include increasing awareness of PPP project in the country for public servants, institutions and impart skills and knowledge in the area of PPP. The proposed policy is anchored to boost investment in PPP in the communication project.

3.10.5.1. Policy Objective

To encourage PPP modality in ICT sector development.

3.10.5.2. Policy Statements

The government shall: -

(i) Create awareness on PPP investment framework;

(ii) Promote joint venture in ICT investment projects; and

(iii) Strengthen PPP investment framework to accommodate nature of ICT projects.

CHAPTER FOUR:

LEGAL FRAMEWORK

To facilitate the execution of the National ICT Policy, 2023, The government shall enact a National ICT Act and its Regulations. The Act shall be dynamic and shall provide legal and regulatory framework to support and coordinated ICT sectorial digitalization. The enactment and operationalization of National ICT and Digital Act and its Regulations shall, among other things, provide enabling environment to support deployment, use and development of ICT technologies to speed-up digital transformation,

Moreover, for effective implementation of this policy, the Government shall review and update the existing policy and laws to address ICT sector related matters.
The implementation of this policy shall also be governed by the followings ICT related laws and regulations: -

(i) Personal Data Protection Act, 2022 and its regulations;
(ii) Cyber Crime Act, 2015 and its Regulation;
(iii) Electronic Transaction Act,2015 and its regulations;
(iv) Electronic and Postal Communication Act 2010;
(v) Tanzania Telecommunication Corporation Limited Act,2017;
(vi) Universal Communication Services Action Fund,2009 and its regulations;
(vii) Tanzania Communication Regulatory Authority Act No. 12 of 2003 and its regulations;
(viii) E-Government Act,2020 and its regulations; and
(ix) Any other presidential decree, government circulars, strategies, and relevant guidelines on ICT issued from time to time.

CHAPTER FIVE:

INSTITUTIONAL FRAMEWORK

This National ICT Policy, 2023 (NICTP 2023) shall be the guiding implementation instrument to public and private stakeholder on all existing and emerging technologies for the best interest of the National digital economy. Stakeholders are required to aligned their institutional ICT plans to complement to the success of the NICTP 2023 vision. The institutional framework is there for designed to ensure successful implementation of NICTP 2023 objectives and commitments. The policy calls all stakeholder to ensure their ICT development budget is lifted to the minimum thresholds of 9% of the total budget. The successful implementation of this policy shall involve participation of different institutions with the following roles and responsibilities

5.1. Ministry's Responsible for ICT

The Ministries responsible for ICT from both parties of the URT shall be responsible for: -

(i) Providing overall direction for national ICT development;
(ii) Ensuring consistency of ICT sector with other national policies, international best practices and conventions;
(iii) Establishment of Presidential National ICT Steering Committee for overall coordination of policy implementation, monitoring and evaluation;
(iv) Initiates enacting of necessary laws related to ICT and taking other required and necessary measures promptly in support of the National ICT Policy implementation;
(v) Creating awareness creation on National ICT Policy,2023 its implementation strategies and other ICT related Acts and Guidelines;
(vi) Overseeing matter related to development of ICT professional;
(vii) Developing the National Digital Platform for collecting and analysing ICT development initiatives in collaboration with other relevant MDA's to ensure availability of comprehensive and accurate ICT data necessary to conduct comprehensive Impact analysis of ICT initiatives;
(viii) Liaising with other MDAs on matters relating ICT sector that require inter-ministerial intervention;
(ix) Ensuring and co-coordinating national representation and participation in regional and international organizations and activities;

5.2. National ICT Technical and Steering Committees (NICT –TC&SC)

The NICT Technical (TC) and Steering Committee (SC) of the URT shall be established to provide oversight and leadership on implementation of strategic sectors implementation strategies in relation to National ICT Policy 2023. Members of Steering Committee will be appointed by the President and will include Chief Secretary, Permanent Secretaries, Heads of public institutions, TNBC and Member of Chamber of Commerce. Reports of steering committee will be presented to Cabinet Secretariat for consideration and further directive.

5.3. Regional and District ICT Committees

Ministry responsible for Regional Administration in collaboration with Ministry responsible for ICT will establish Regional and District ICT Committees which will be responsible for coordination and determination of ICT utilization for district and rural development and service delivery and monitoring of ICT utilization among sectors and communities.

5.4. ICTC

The ICTC and ZICTIA from both parties of the URT shall be responsible for: -

(i) Ensuring that the ICT sector provides needed support to other sectors of the national economy;
(ii) Provide support to the private sector where appropriate to implement ICT developmental initiatives;
(iii) Identify emerging global ICT trends and evaluate their potential impacts on Tanzania ICT Industries;
(iv) Facilitate and promote an enabling environment for nurturing development of competent ICT professionals, Start Ups and Talents
(v) Facilitate and promote development of ICT projects in PPP;
(vi) Conduct studies to aid ICT sector development
(vii) Advise the Minister on the formulation of the general policies for the ICT industry and generally on matters relating to the ICT industry

5.5. Ministries Responsible for e-Government

The Ministries responsible for e-Government from both parties of the URT shall be responsible for;

(i) Developing e-government guiding frameworks, and facilitating their implementation in Government institutions;
(ii) Coordinating, overseeing and promoting of the established and maintained e-Government services of the URT; and
(iii) Enforcing compliance of e-government guiding frameworks in public institutions.

5.6. Sector Ministries, Department and Agency (MDA`s)

The MDA`s shall be responsible for: -

(i) Developing, coordinating and supervise implementing integration of NICTP, 2023 in their sector specific policies;
(ii) Identifying contribution of digitalization to national economy; and
(iii) Periodic updating Sector digital development initiatives in the National Digital Platform.

5.7. The Office of Treasury Registrar (OTR)

The OTR shall be responsible for enforcing implementation and compliance of the National ICT Policy, 2023 to Public Institution and Statutory Corporations (PISC`s).

5.8. Tanzania National Business Council (TNBC)

The TNBC shall be responsible for enforcing implementation and compliance of the National ICT Policy, 2023 to its all stakeholders.

5.9. The Office of the Attorney General

The Office of the Attorney General shall be responsible for:-

(i) Advising the Government on legal matters related to ICTs and digital transformation; and
(ii) Facilitating negotiations of contracts and treaties related to ICTs

5.10. Tanzania Private Sector Foundation

The Tanzania Private Sector Foundation shall be responsible for:

(i) Collaboration with the Government through Private Public Partnerships (PPP) to own and propagate digital technology investment and digital economy initiatives in the country;
(ii) Collaboration with the Government in financing research and development, bringing innovations and relevant solutions for the implementation of this policy;
(iii) Collaborating with the Government in big data utilization for socio and economic development; and
(iv) Advising the Government on issues related to ICT development in the Country;

5.11. Non-State

Non-State Actors shall be responsible for:

(i) Implementing this, Policy; and
(ii) Participating in creation of digital technological development, utilization, awareness, transparency and accountability in matters pertaining to digital economy.

5.12. Education And Research Institutions

Education and research institutions shall be responsible for:-

(i) Development of digital and emerging technologies in the region;
(ii) Promoting digital contents to be used in training and developing competent human capital; and
(iii) Undertaking relevant scientific research outputs for digital development in Tanzania.

5.13. Sector regulator

The sector regulators shall be responsible for:

(i) Enforcement of laws and regulations to ensure compliance; and
(ii) Promoting competition among stakeholders in the transformation of digital economy.

5.14. Organ for Data Protection

The Data Protection Commission will be responsible for registration of all data collectors and processors, monitoring the compliance of data collectors and processors, receiving, investigating and handling complaints on the breach of data protection and the right to privacy; and researching and monitoring technological development in relation to data processing. The Organ will be responsible for governing all issues related to personal data protection.

5.15. Development Partners

Development partners shall be responsible for:

(i) Working closely with the Government for sustainable development programmes related to implementation of this policy; and
(ii) Participating in resource mobilization and provision of support for investing in fundamental areas of ICT infrastructure development.

CHAPTER SIX:

MONITORING AND EVALUATION

5.1 Monitoring and Evaluation Plan

The implementation of this Policy and achievement of its Vision, Mission and Objectives will require monitoring and evaluation throughout the useful life time of the Policy. This shall involve development of Monitoring and Evaluation framework as an essential tool for policy implementation, reviews and assessment. It entails harmonized and coordinated institutional set-up, and arrangement specifying clear lines of responsibility for different stakeholders to execute their duties. The overall responsibility for the monitoring and evaluation of the policy implementation lies within the Ministry Responsible for ICT sector in close collaboration with other stakeholders both in the public and private sectors. Bearing in mind of the fact that ICT issues are cross-cutting and cross-sectoral, a need for all Government Ministries, Department and Agency as well as Local Government Authorities to establish ICT departments as a focal point for implementation of ICT development matters and participation in monitoring and evaluation tasks is inevitable. For effective monitoring and evaluation, the ICT policy 2023, each stakeholder is directed to develop a strategic implementation plan, ensure reliable internal monitoring mechanism and capacity to implement focus areas as articulated in this policy.

The Ministry responsible for ICT will design an M&E system to identify progress, feedback and needs of different stakeholders including Ministries, Departments and Agencies (MDA's), Civil Society Organizations (CSO's), Private sector, research and academic institutions, development partners, media and the general public. Progress in execution of the activities will be conducted in accordance with the predetermined KPIs and other specific evaluation indicators. This system shall be developed after strategic interventions for policy implementation have been formulated. The implementation strategy shall include a clear definition of the specific roles of the different institutions in the course of monitoring and evaluation. The following are tasks for the Government and other actors in undertaking monitoring and evaluation:

a) Developing performance indicators and benchmarks;

b) Setting time and logistics for monitoring and evaluation; and

c) Review and assess relevancy and consistency of other policies and recommend necessary measures.

Tracking progress on implementation of the milestones and targets will be done periodically, which will focus on assessing whether the planned activities are in line with the achievement of set targets.

5.2 Review and revision of the Policy

The Policy implementation will be evaluated after five years of implementation. Overall review is assigned to the ministry responsible for ICT matters. The report of the evaluation will be submitted and discussed at the Stakeholders Meeting to inform them on the progress and challenges of the implementation that will provide the basis for making decisions on the way forward.

5.3 Conclusion

The ICT policy 2023 reflects the Government commitment to become a digital driven economy country by 2025. This aspiration goes in hand with the need to transform the country into a middle-income economy by the year 2025 the goal that has already been achieved in the year 2020 by becoming a lower middle income. Despite the achievement, in order for the countries to sustain and achieve higher income status, investment in ICT development in public service delivery cannot be ignored. Therefore, ICT policy 2023 is expected to contribute to the Third Five Year Development Plan 2021/22-2025/26 (FYDP III) that focus on Nurturing an Industrial Economy and Realizing Competitiveness-led Export Growth economy respectively. The policy builds on new developments, emerging opportunities, address complexities and challenges related to enabling ICT environment, institutional framework, and provision of innovative financial and non-financial support services and enabling infrastructure for the ICT sector development. The policy has addressed policy issues emanating from the review and analysis of the ICT Policy 2016 and identified gaps, limitations, challenges to be addressed in the course of its implementation. The policy is expected to serve as backbone for the development of a vibrant and dynamic ICT sector development that increasingly contributes to economic development, job creation and welfare of Tanzanian citizenry.