

**THE UNITED REPUBLIC OF TANZANIA  
MINISTRY OF COMMUNICATIONS AND TRANSPORT**



**NATIONAL INFORMATION AND COMMUNICATIONS  
TECHNOLOGIES POLICY**

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## GLOSSARY

- Broadcasting** – A term referring to the distribution of information using radio, television, Internet and intranet or webcasting.
- Digital Divide** – The technological gap between countries 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 / Electronic Commerce** – Business activities involving consumers, manufacturers, suppliers, service providers and intermediaries using computer networks such as the Internet.
- Global Information Infrastructure (GII)** – The components making up a wide area network arising from multiple heterogeneous networks, which facilitate multidimensional communication among different nations, business and organisations.
- “Hollowing-out”** – The term given to the adverse impact of globalisation and ICT on developing country economies (and their Government revenues) as a result of commercial transactions that are performed electronically and are invisible to their financial institutions and legal frameworks.
- Information and Communication Technologies (ICT)** – Is a generic term used to express the convergence of information technology, broadcasting and communications. One prominent example is the Internet.
- Information Based Economy (IBE)** - A country or region where ICT is used to develop economic foundation and market transactions.
- Information Society (IS)** – A country or region where information technology has been fully exploited and is part of everyday life as an enabler of information sharing, communication and diffusion.
- Information Technology (IT)** – Embraces the use of computers, telecommunications and office systems technologies for the collection, processing, storing, packaging and dissemination of information.
- Internet Exchange Point (IXP)** – It is a “peering point” for Interconnecting ISPs and/or other IXPs for the purpose of localising national traffic routing as opposed to using international routes to accomplish Inter-ISP traffic flow.
- Internet Service Provider (ISP)** – Also known as Internet Access Providers – Is 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 (KBE)** – A country or region where ICT is extensively used to enhance knowledge so that higher human capital brings further improvement to the economy.
- Local Area Network (LAN)** – 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.
- Teledensity** - The number of telephones per 100 people in a region.

**“Mock up”** – The possibility of teaching ICT literacy need not be constrained by an absence of computer equipment, since pupils in schools unable to afford such equipment might be guided to construct model computers out of locally available materials. This allows the pupils to gain an understanding of the principles and values associated with computers, networks and peripherals without having real computers in their schools. If teachers were trained accordingly, this type of education will reach even the remotest households. A simile is children making mock-up cars and trucks.

**Voice over Internet Protocol (VoIP)** – Also known as Voice over Internet, IP Telephony or Internet Telephony – refers to telephone services provided over the Internet as the transmission medium.

**Wide Area Network (WAN)** – A computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local-area networks (LANs). Computers connected to a wide-area network are often connected through public networks, such as the telephone system. They can also be connected through leased lines or satellites. The largest WAN in existence is the Internet.

## LIST OF ACRONYMS

<b>AIDS</b>	-	Acquired Immune Deficiency Syndrome
<b>ATM</b>	-	Automated Teller Machine
<b>CEO</b>	-	Chief Executive Officer
<b>GDP</b>	-	Gross Domestic Product
<b>HIV</b>	-	Human Immunodeficiency Virus
<b>ICT</b>	-	Information and Communications Technologies
<b>IFMS</b>	-	Integrated Financial Management System
<b>IP</b>	-	Internet Protocol
<b>ISP</b>	-	Internet Service Provider
<b>IXP</b>	-	Internet Exchange Point
<b>LAN</b>	-	Local Area Network
<b>LGRP</b>	-	Local Government Reform Programme
<b>MCT</b>	-	Ministry of Communications and Transport
<b>NGO</b>	-	Non-Governmental Organisation
<b>NTP</b>	-	National Telecommunications Policy
<b>PCIS</b>	-	Personnel Controls Information System
<b>PoP</b>	-	Points of Presence
<b>PRSP</b>	-	Poverty Reduction Strategy Paper
<b>PSRP</b>	-	Public Service Reform Programme
<b>PSTN</b>	-	Public Switched Telephone Network
<b>R&amp;D</b>	-	Research and Development
<b>Sida</b>	-	Swedish International Development Agency
<b>SME</b>	-	Small and Medium Enterprises
<b>TBC</b>	-	Tanzania Broadcasting Commission
<b>TCC</b>	-	Tanzania Communications Commission
<b>TIC</b>	-	Tanzania Investment Centre
<b>TPB</b>	-	Tanzania Postal Bank
<b>TPC</b>	-	Tanzania Posts Corporation
<b>TTCL</b>	-	Tanzania Telecommunications Company Limited
<b>TVT</b>	-	Television Tanzania
<b>VoIP</b>	-	Voice over Internet Protocol
<b>VPN</b>	-	Virtual private network
<b>VSAT</b>	-	Very Small Aperture Terminal

# 1 INTRODUCTION

## 1.0 INTRODUCTION

### 1.1 Background

Information and Communications Technologies (ICT) advances since the end of the 20<sup>th</sup> Century have led to multiple convergences of content, computing, telecommunications and broadcasting. They have brought about changes in other areas, particularly in **knowledge management** and **human resources development**. Increasing capacity of ICT has further been empowered by the growth of a global network of computer networks known as the Internet. It has impacted the way business is conducted, facilitated learning and knowledge sharing, generated global information flows, empowered citizens and communities in ways that have redefined governance, and have created significant wealth and economic growth resulting in a global information society.

The gap between those able, and those unable, to participate in the knowledge economy is currently termed as the “*digital divide*.” This digital divide is evident within nations, and between the developing and the developed world. The current Tanzania ICT situation requires urgent steps to enable Tanzanians to participate meaningfully in the knowledge economy, recognising that Tanzania has low levels of human capital development, local content creation, ICT infrastructure and access, which together lead to high costs of participation.

The dangers posed by the digital divide, and the risk of being excluded further from the knowledge economy and social development, has propelled the Government to put in place a policy framework through which coordinating mechanisms and harmonized strategies might be nurtured. This policy framework makes it possible for “enabling sectors” (such as telecommunications, information, or broadcasting) to work together whereby “enabled sectors” (such as education, health, governance, or agriculture) can become further empowered through the appropriate development and application of ICT.

ICT is both cross-sectoral and a sector in its own right. An ICT policy has to relate to other relevant sectoral policies, whether they are infrastructural (such as telecommunications or e-commerce), or vertical (such as education, tourism, manufacturing or health), or horizontal (such as information, or governance). Consequently, in addition to developing and implementing an ICT policy, other relevant sectoral policies and their related institutions and regulations must accommodate ICT and its multiple convergences. It is also necessary to review existing legislation, thereby enacting requisite changes while introducing new legislation to create the appropriate legal framework within which this policy will be implemented.

Tanzania achieved notable progress in deploying ICT notwithstanding the 1974 Prohibition Order on Electronic Computers and Television Sets. The achievements were a result of various adjustments since the early nineties in policy, regulatory and commercial facets, both macroeconomic and within ICT’s converging sectors. The private sector has actively contributed to these achievements by investing in among others, support facilities, training centres and sales outlets. These efforts have enabled government departments, institutions of learning, Non-Governmental Organisations (NGOs), as well as other entrepreneurs; acquire ICT solutions that address their individual problems most appropriately.

The lack of an overall policy and poor harmonisation of initiatives, have led to random adoption of different systems and standards, unnecessary duplication of effort, and waste of scarce resources, especially through the loss of potential synergies. Therefore, this National ICT policy deploys a broad-based national strategy to address Tanzania’s developmental agenda.

Appropriate institutional arrangements are to be created to ensure that all stakeholders can rise to the challenge of implementing this ICT policy.

## 1.2 Vision

The National ICT Policy is aligned to the following vision statement:

*“Tanzania to become a hub of ICT Infrastructure and ICT solutions that enhance sustainable socio-economic development and accelerated poverty reduction both nationally and globally.”*

## 1.3 Mission

The overall mission of this Policy is:

*“To enhance nation-wide economic growth and social progress by encouraging beneficial ICT activities in all sectors through providing a conducive framework for investments in capacity building and in promoting multi-layered co-operation and knowledge sharing locally as well as globally.”*

## 1.4 The policy context

The Tanzania Development Vision 2025 envisages a nation imbued with five main attributes: high quality livelihood; peace, stability and unity; good governance; a well educated and learning society; and a strong and competitive economy capable of producing sustainable growth and shared benefits. On the other hand, this Policy has articulated ten main focus areas in harnessing ICT in Tanzania which include strategic ICT leadership; ICT infrastructure; ICT Industry; Human Capital; Legal and Regulatory Framework; Productive Sectors; Service Sectors; Public Service; Local Content; and Universal Access.

It is also noteworthy that Vision 2025 explicitly includes ICT by noting, “The new opportunities that ICT is opening up can be harnessed to meet the goals of the Vision”. Therefore this ICT Policy is a reflection of national goals, objectives and aspirations as expressed in Vision 2025, setting out digital opportunities that Tanzania can exploit towards meeting the Vision 2025 as set out below:

1. High Quality Livelihood:
  - i. *Service Sectors*
  - ii. *Availability of Universal Access*
2. Peace, Stability and Unity:
  - i. *Strategic ICT Leadership*
  - ii. *Legal & Regulatory Framework(trust, security & values)*
3. Good Governance:
  - i. *Public Service (e-Government)*
  - ii. *ICT infrastructure (Effective use of unutilised ICT capacity and infrastructure)*
4. A Well-Educated and Learning Society:
  - i. *Human Capital (Gender issues and disadvantaged groups)*
  - ii. *Local Content*
5. A Strong and Competitive Economy Capable of Producing Sustainable Growth and Shared Benefits:
  - i. *Productive Sectors (Adverse effects of globalisation)*
  - ii. *ICT Industry*

## 2 STATUS OF ICT IN TANZANIA

Tanzania has made remarkable progress in deploying ICT. This progress has been well received by the citizens and service providers who are striving to address unmet demand and competition in newly liberalised markets.

### 2.1 Access

#### 2.1.1 *Infrastructure*

Tanzania's tele-density is low, with the number of fixed and mobile cellular lines currently standing at 12 telephone lines per 1000 people (i.e. a teledensity of 1.2) and the number of mobile phone subscribers currently stands at 81 per 10,000 inhabitants. In contrast, the City of Dar es Salaam has 5 fixed lines and 10 mobile phone subscribers per 100 people. (See Table 1)

Tanzania's Public Switched Telephone Network (PSTN), using fibre optic, microwave and satellite-based links, is now over 95% digital. This paves the way for allowing the provision of new services enabled by ICT. The coverage of the network infrastructure is limited to urban areas and thus lack of telecommunications and other infrastructures in the rural areas remains a basic impediment to the provision of such new ICT services.

Tanzania has a liberalised broadcasting sector with some broadcasting operators spread over a vast area nationally and even regionally while others cover a local geographical area. Although at present the programme content of the television services falls short of the sentiments expressed in the Broadcasting Services Act, 1993 and consists mainly of imported material and sports coverage, this imbalance is being addressed by both the regulatory authority, and the providers of those services.

#### 2.1.2 *Internet availability*

The Tanzania Communications Commission (TCC) has licensed nine companies to provide public data communication services including Internet bandwidth. These data operators have isolated initiatives of connecting their Points-of-Presence (PoPs) to the global Internet backbone. As a result, Tanzania lacks cheaper and high capacity connections to the global Internet. All connections, regardless of the data service provider, are small capacity international links that connect to the global Internet backbone in different countries such as Norway and the United States. Therefore, the limited international Internet bandwidth is scarce and extremely expensive. The lack of a national Internet Exchange Point (IXP) also means that much of Tanzania's local traffic is routed via international routes.

There are presently sixteen licensed ISPs in Tanzania providing between 10,000 and 15,000 dial-up accounts in the country with many more users via Company and Government LANS and Internet cafés. Available e-readiness studies suggest that there is a large unsatisfied demand in the country for Internet access.

#### 2.1.3 *Hardware and software*

There is no local manufacture of ICT equipment in Tanzania; all local dealers or agents import these products. There are no standards guiding the imports of both hardware and software. Few local companies are developing computer application packages. Most of the software used by both public and private sectors is imported at considerable cost. The use of open-source software is on the lower side. Overall, Tanzania has a small emerging



skilled capacity to support the ICT industry in terms of developing, selling or supporting hardware and software.

## **2.2 Learning**

### ***2.2.1 Educational access to ICT***

Currently very few educational institutions have computer laboratories and other multi-media facilities. These facilities are more in private schools than in public schools. Even fewer of these facilities are linked to the Internet. At universities and other institutions of higher learning, few computers are available for use by students and academic staff. However, they are not enough to meet the demand. Internet access bandwidth at these institutions is limited ranging from 32 kbps – 512 kbps. Though numerous, cyber cafes do not currently offer a conducive environment or pricing structure to make them viable as e-learning centres.

### ***2.2.2 Enhancing education using ICT***

There is an official Secondary School Computer Studies Syllabus for Forms I – IV developed in 1996 and issued in 1997. It is out of date with respect to the evolution of technology since the early 90`s. However, only a few students have taken these courses so far. The lack of a programme for training teachers on computers and other multi-media utilization has been identified as a major reason for slow take up of computer studies in primary and secondary schools. In this respect, private schools are far better than public schools. Generally, the use of ICT enhances effective delivery of education. Currently, this benefit is only evident in some schools and colleges in urban areas.

### ***2.2.3 Developing the ICT workforce***

In general, there is a shortage of well-qualified professionals of ICT in Tanzania. There is also no well-established ICT professional profiles, and a standardised process of evaluation or certification of the different courses offered by various training centres is lacking. Access to Online and distance learning for ICT is also still limited. Furthermore, opportunities for training are mostly limited to few urban centres.

## **2.3 Society**

### ***2.3.1 ICT in Everyday Life***

Many ICT users in Tanzania access the Internet through Internet Cafés. There is therefore a need to reduce barriers in deploying ICT and in developing the required human capital for sustainable participation of Tanzanian Society in the ICT industry.

On the other hand, there is already a significant improvement in the penetration of fixed and mobile telephone lines and public pay-phones in urban centres. However, the available e-readiness evidence shows that there is a need to increase the availability of ICT as a result of the high current demand and burgeoning awareness.

### ***2.3.2 Locally relevant content***

While there are many Tanzanian websites, most of these are in English and are not updated regularly. Many appear to be merely an advertising presence on the Web. There are a number of vibrant websites with the majority publishing local news on the Web, while others demonstrate some convergence by giving access to local radio programmes

on the Internet. Despite the innovation of relatively few websites, the Web has yet to become a dominant medium for society to communicate, particularly because of the few websites that are in Kiswahili. However, an encouraging phenomenon is that Kiswahili is recognised as being the African language with the greatest Web presence.

### **2.3.3 *ICT in the workplace***

There is sufficient evidence that several large organisations and companies make extensive use of networked computers, some with Internet access. The banking sector makes heavy use of ICT to provide improved customer service with some banks using Very Small Aperture Terminals (VSATs) or public leased lines to interconnect their branches and cash dispensing Automatic Teller Machines (ATMs).

However, anecdotal evidence suggests that smaller companies, and many institutions outside Dar es Salaam, make marginal use of ICT in their daily operations. The greatest obstacle to effective use of ICT in the workplace according to the Sida Survey and the e-Readiness Report is the low capacity of human capital in the use and maintenance of ICT.

## **2.4 The economy**

### **2.4.1 *ICT employment opportunities***

The supply of IT professionals is considerably less than current demand, especially in the areas of higher skills and experience. Furthermore, job mobility in the ICT sector is very high. Therefore, there is a need for increased emphasis on the human capital development aspects to address this situation.

### **2.4.2 *e-Commerce***

Only few local websites recently began offering limited e-business services. However these services are constrained by the lack of a national payment system, local credit cards, and a legislative framework appropriate for e-business. These are constraints that need to be addressed urgently. Most significantly, the legal framework does not provide adequate safeguards to create an environment of trust for e-business transactions to take place. Consequently, financial institutions are not able to set up provisions for supporting e-transactions for their own, and each other's clients.

### **2.4.3 *e-Government***

Various arms of government have made significant progress in deploying ICT in e-government solutions. These solutions can be categorised into both e-government and e-governance solutions. In the category of e-government, several departments are transforming their operations by deploying ICT. However, no mechanisms exist for ensuring that these major initiatives are coordinated or developed within a holistic strategic government plan. To make further progress and reap additional rewards, government needs to develop a comprehensive and holistic e-government strategy for urgent implementation. Not only will this enhance government productivity, but it will also enable the government, as a "model user" of ICT, to become a driving force for sustainable progress in the national ICT arena. The possibility of providing e-governance services depends upon the existence of an effective e-government infrastructure through which the public service can communicate internally and with the intended beneficiaries of its services.

## 2.5 Key ICT statistical indicators

Set out below are key statistics indicators benchmarked at Tanzania's Independence, at the start of the major reform process, in 1993 and 2002. The progression has been remarkable since 1993.

Table: 1

Indicators	1961	1993	2002
Population (in millions)	12.3	26.7	33.6
Fixed line exchange capacity	11,300	125,703	234,640
Mobile operators		1	4
Mobile subscribers		1,500	700,000
Teledensity (lines per 100 people)	0.10	0.32	1.22
Data communications operators			16
Internet service providers		1	23
Internet subscribers (Dialup accounts and Wireless)		10	14,000
Internet capacity (total bandwidth Kbits)		64	44,000
Television licences		1	24
Radio broadcast licences	1	2	18

## 2.6 Government efforts

The remarkable improvements in ICT key statistical indicators partly result from significant government reforms, privatisation, telecommunication sector liberalisation, the emerging private sector and entrepreneurship, and official development assistance. Some of the notable efforts are summarised below:

### 1. Liberalisation

- i. *The reform of the telecommunications sector resulting in the split of Tanzania Postal & Telecommunications Corporation into Tanzania Communications Commission (TCC – the regulator), Tanzania Telecommunications Company Limited (TTCL – the PSTN operator), Tanzania Posts Corporation (TPC)*
- ii. *International gateways in Dar es Salaam (TTCL) and Zanzibar (Zantel)*
- iii. *Establishment of the one-stop investment shop Tanzania Investment Centre (TIC)*

### 2. Legal and regulatory framework

- i. *Formation of two independent regulatory bodies TCC and Tanzania Broadcasting Commission (TBC)*

- ii. *Establishment of a Commercial Court to resolve commercial disputes rapidly*
  - iii. *Promulgation of the National Records and Archives Management Act*
3. Privatisation
- i. *The partial privatisation of TTCL*
4. Government reforms
- i. *Public service reform programme*
  - ii. *Poverty alleviation reform programme*
  - iii. *Parastatal sector reform programme*
  - iv. *Telecommunications reform programme*
  - v. *Legal sector reform programme*
  - vi. *Financial sector reform programme*
  - vii. *Local government reform programme*
5. Government projects / programmes
- i. *Integrated Financial Management System (IFMS)*
  - ii. *Personnel Control and Information System (PCIS)*
  - iii. *Establishment of national TV Tanzania (TVT)*
  - iv. *Tanzania Global Development Learning Network*
  - v. *Websites (e.g.: [www.tanzania.go.tz](http://www.tanzania.go.tz), [www.moct.go.tz](http://www.moct.go.tz), [www.tcc.go.tz](http://www.tcc.go.tz), [www.tzonline.or.tz](http://www.tzonline.or.tz), and [www.tanzaniagateway.org](http://www.tanzaniagateway.org))*
  - vi. *National Payments System*
6. New products, markets and services
- i. *Removal of all taxes and duties on computers and peripherals*
  - ii. *Four mobile operators: Celtel, Mobitel, Vodacom and Zantel*
  - iii. *Banking sector ICT deployments. These include virtual private networks (VPNs) and automated teller machines (ATMs)*
  - iv. *Internet service providers are now 23*
  - v. *Data service providers are now 16*
  - vi. *Cyber cafés are reputed to be over 1000, more than any other sub-Saharan African country*
  - vii. *Rural community Telecentres are being established in many parts of the country*
  - viii. *Internet points of presence (PoPs) in nearly all regional centres with a 95% digital backbone and switching system*

## **2.7 The ICT environment in Tanzania**

Despite the rapid improvements Tanzania's ICT environment is still somewhat challenged. ICT is concentrated in Dar es Salaam, the commercial capital with little deployment or access in other urban centres or in rural Tanzania.

Currently very few educational institutions have computer laboratories and other multi-media facilities and these are more prevalent in private educational institutions than in public ones. In any event facilities are insufficient to meet demand. In addition while there

is an official Secondary School Computer Studies Syllabus for Forms I – IV developed in 1996 and issued in 1997, it is out of date with respect to the evolution of technology since the early 90`s. Furthermore the lack of a programme for training teachers on computers and other multi-media utilization has been identified as a major reason for slow take up of computer studies in primary and secondary schools. Typing skills and the use of “mock-ups” as teaching aids to simulate computers and peripherals should be promoted in schools that cannot afford to purchase ICT equipment.

In general, there is a shortage of well-qualified professionals of ICT in Tanzania. There are also no well-established ICT professional profiles, and a standardised process of evaluation or certification of the different courses offered by various training centres is lacking. Access to online and distance learning for ICT is also still limited. Furthermore, opportunities for training are mostly limited to few urban centres.

While there are many Tanzanian websites, most are in English, and are not, therefore, a dominant medium for society to access information. Many websites are not updated regularly and appear to be an advertising presence on the Web. However some are vibrant websites with the majority publishing local news on the Web, while others demonstrate some convergence by giving access to local radio programmes on the Internet. There has been recent controversy on access to pornography via the Internet causing concern for safeguarding of our diverse mores, morals and culture.

The potential for e-commerce is constrained by the lack of local credit cards and an appropriate legal framework that engenders an environment of trust, security and accountability.

## **2.8 Policy**

The Communications Act was enacted in 1993 and the National Telecommunications Policy (NTP) was launched in 1997. The telecommunications sector has been partially liberalised with an “independent” regulator, and competition has grown in mobile cellular services, radio paging, internet services data communications services, and value added services. While there is provision for a Rural Telecommunication Development Fund, this has not yet been implemented, leaving matters of universal access to the liberalised environment. On the other hand, since the financial year 2001/2002, all taxes and duties on computers and peripherals have been abolished. This has been enthusiastically received.

Other Acts and policies directly relevant to ICT include the Broadcasting Services Act of 1993 and the Broadcasting Services Policy that is currently under review; the National Science and Technology Policy of 1996; and the Tanzania Development Vision 2025 of 1998. These need to be reviewed and linked with the National ICT Policy, notably with the anticipated merger of the telecommunications and broadcasting regulators.

## **3 POLICY OBJECTIVES, CHALLENGES AND POLICY STATEMENTS**

The National ICT Policy's broad objectives are to:

- 1. Provide a national framework that will enable ICT to contribute towards achieving national development goals; and**
- 2. Transform Tanzania into a knowledge-based society through the application of ICT.**

The policy articulates ten focus areas whose objectives, challenges and policy statements are detailed below. As already shown under Policy Context, the ten focus areas are drawn from the aspirations of Tanzania's Vision 2025. These areas should be interpreted, not as sequential steps, but as elements of a multi-dimensional space with numerous cross-cutting themes. This cross-cutting characteristic is one of the main reasons why a coherent over-arching ICT policy is urgently needed.

### **3.1 Strategic ICT Leadership**

#### **3.1.1 Issues:**

Tanzania's ICT environment is lacking a focused ownership and visionary leadership that takes into account the multi-sectoral nature of ICT itself. Initiatives are fragmented, and sometimes duplicated, with loss of synergies and exploitation of economies of scale.

It is therefore imperative that efforts be applied to build oversight and leadership capability to bring cohesiveness to the ICT environment. Such leadership will also help ICT initiatives to be merged with national and sectoral priorities, and be in harmony with realities and expectations of stakeholders.

Leadership is also important in resourcing, creating an attractive environment for investors and consumers, identifying areas needing priority funding and support, and obtaining direct resources from either national or international sources for ICT initiatives. Consequently, leadership requires institutional development for organisations involved in ICT and for political and executive responsibilities to be assigned towards delivering this Policy.

#### **3.1.2 Policy Objectives**

The following are among the objectives pertaining to Strategic ICT leadership:

- a) Increase the use of ICT for equitable and sustainable socio-economic and cultural development of Tanzania.
- b) Raise the level of awareness on the role and potential of ICT.
- c) Create an authoritative national organization to effect, coordinate and review the ICT policy.
- d) Prioritise ICT investment in development assistance policies and programmes.
- e) Enhance synergy, economies of scale and productivity in all ICT matters.
- f) Create a favorable environment for cooperation and partnership in ICT among public and private sectors, civil society, and between all stakeholders at local, national, regional and international levels.

- g) Empower and facilitate Tanzania's participation in the Global Knowledge Society.

### **3.1.3 Policy Challenges**

- i. Finding appropriate mechanisms for policy coordination.
- ii. Creating a wareness among leaders and the public, and political championing of ICT.
- iii. Promoting ICT to further productivity among the sectors that are key drivers of the national economy.
- iv. Prioritising of development assistance in ICT.
- v. Developing ICT sector parameters and indicators.
- vi. Participation in global governance of ICT and the Internet.
- vii. Creation of an environment conducive for effective ICT deployment.
- viii. Addressing rural/urban imbalances.
- ix. Promotion of regional integration and international cooperation.
- x. Promotion of more effective and increasingly broad-based national participation in international fora on Internet policy making and governance.

### **3.1.4 Policy Statements**

1. Since ICT is a powerful development facilitator, the Government will embrace ICT as an integral part of its development strategy and empower all citizens to use it to fight poverty, ignorance and disease so as to improve the quality of their lives.
2. The Government shall create the necessary enabling environment to facilitate the deployment, utilisation and exploitation of ICT in all sectors of life.
3. The Government shall annually allocate funds equivalent to a reasonable proportion of GDP for ICT deployment, diffusion and universal access.
4. The Government shall promote the creation of bilateral relations and cooperation with regional and international organisations that generate, process, store and disseminate ICT driven information in order to expand and strengthen local ICT capacity.
5. The Government will promote the development and/or acquisition of flexible standard information processing methods and facilities and oversee their utilisation by all users of ICT in the national network in order to effect or ensure compatibility.
6. The Government will encourage public, private and community sector partnerships to jointly invest in ICT development.

## **3.2 ICT Infrastructure**

### **3.2.1 Issues**

Numerous forms of technological convergence are occurring. ICT infrastructure is also evolving, embracing the availability of equipment, supplies and services of computers, telecommunications, multimedia information providers, broadcasting (radio and

television), and content. This raises many issues regarding interconnection policy and equipment standards for interconnectivity. It also means that, quality and quantity of network connections points must be evaluated together all the time. Additionally, the relevance of ICT infrastructure in developing countries must be associated with the availability of other essential services like electricity supply, basic economic services and social necessities that too often tend to be taken for granted.

In the process of disseminating infrastructure, considered choices must be made with respect to the evolving technology options that permit leapfrogging into optimal deployment strategies for the particular time and location, allowing sustainability, innovativeness and responsive service standards.

### **3.2.2 Policy Objectives**

- a) Foster efficient, inter-operable, reliable and sustainable national ICT infrastructure commensurate with grass-root needs, and compliant with regional and international standards, with increasing access while reducing cost.
- b) Encourage regulatory organs to jointly investigate and respond to the challenges of convergence and newly emerging technologies, while drawing inputs from the general public and the key stakeholders.
- c) Establish mechanisms and participate in addressing new international policy and technical issues raised by ICTs new technologies and services.
- d) Foster the evolution of dynamic strategies that will address network security issues.
- e) Evolve regional Internet development policies and infrastructure.
- f) Establish mechanisms that will result in least cost access to bandwidth for institutions or individuals in Tanzania.
- g) Ensure all installed ICT infrastructure and capacity is utilized effectively and contributes to resilience and redundancy.

### **3.2.3 Policy Challenges**

- i. Build an adequate ICT infrastructure.
- ii. Address connectivity issues.
- iii. Developing appropriate software plans and strategies.
- iv. Promote convergence of voice, data, computing and video (for example multimedia services, VoIP).
- v. Mobilize strategic investments.
- vi. Compliance with regional and international ICT infrastructure standards.
- vii. Improve access to basic socio-economic and cultural services.
- viii. Meet universal access obligations.

### **3.2.4 Policy Statements**

1. The Government will ensure that a reliable state of the art ICT infrastructure, of adequate capacity, high-speed and countrywide coverage is developed.
2. The Government will support, through incentives and directives, *bona fide* institutions actively involved in the development and application of ICT.



3. The Government will set up national IXPs and hierarchical IXPs, in collaboration with other countries as well as regional information and communications infrastructure.
4. The Government will encourage appropriate lending mechanisms that foster a dynamic climate for entrepreneurs to venture into ICT and related sectors.
5. The Government will encourage public and private sectors to explore various means of funding, including but not limited to loan finance, equity finance, incubation finance facilities, hire purchase finance, and grant finance for ICT development.
6. The Government will seek to ensure all installed ICT infrastructure is utilised effectively, and is synchronized to contribute to resilience and redundancy on a national basis.

### **3.3 ICT Industry**

#### **3.3.1 Issues**

It is obvious that the development of ICT cannot occur without the involvement of the private sector. Most ICT firms focus on serving urban centres whereas 80% of the population is in sparsely populated rural areas. Enticing the private sector to broaden their target markets will need the Government's support to make it economically viable to invest in small and dispersed markets. At the same time, our country needs to move from being mere consumers of the technology to the processes of being designers and manufacturers of ICT. This will also require Government support.

Tanzania's ICT industry needs to be encouraged towards experimentation and research, with the support of mentoring, venture capital and fiscal incentives, as small-scale start-ups and artisan enterprises are an essential component of a vibrant ICT sector. The education system needs to be oriented to emphasise entrepreneurial and professional skills. In addition to creating opportunities for acquiring technical competence in ICT, hybrid technical and commercial skills are very necessary in the sector.

The ICT industry will also need to gain a common voice to talk to the Government and articulate the industry's needs and concerns. This relationship with Government needs to be transformed from being focused mostly on taxes and tenders towards being more of a partnership for national development.

#### **3.3.2 Policy Objectives**

- a) Create a conducive environment for a vibrant and sustainable ICT industry in Tanzania that is aligned to national priorities.
- b) Contribute to efforts in making the country a competitive developer and producer of ICT products and services.
- c) Build direct relationships with the manufacturers and designers of ICT resources.
- d) Promote ICT culture, general awareness and political e-readiness in Tanzania.
- e) Provide accurate feedback to the Government on the impact of policies and measures that affect the ICT market, while informing and advising on future courses of actions.
- f) Guide the Tanzanian market on the full range of available options in terms of sourcing, licensing, upgrading and sustaining of ICT investments.
- g) Promote special package deals for micro-enterprises or for community organizations.
- h) Encourage multi-sectoral initiatives that apply ICT for poverty reduction, employment creation, and innovative entrepreneurship.

### **3.3.3 Policy Challenges**

- i. Building capacity and culture for maintenance and after sales services.
- ii. Increasing capacity of ICT project management.
- iii. Improving availability and affordability of hardware and software solutions.
- iv. Making available appropriate financing and fiscal mechanisms for ICT entrepreneurs.
- v. Promotion of ICT culture in Tanzania.
- vi. Encouraging the involvement of the private sector.
- vii. Development of local and open source software.
- viii. Development of local content.
- ix. Increasing in-sector networking and partnering.
- x. Addressing issues related to intellectual property rights.

### **3.3.4 Policy Statements**

1. The Government will promote, encourage and support research and development activities in the areas of ICT and strengthen the national capability to develop research programs and projects in the ICT field.
2. The Government will nurture the emerging culture of innovation and entrepreneurship as an enabling environment for the growth and success of the ICT industry.
3. The Government will foster the growth and technological sophistication of the ICT industry in order to support the extensive and innovative application of ICT and the export of competitive ICT products and services.
4. The Government will encourage and support local institutions, in partnership with foreign owned multinational companies to establish production facilities, conduct research, and design as well as manufacture specialised ICT equipment locally.

## **3.4 Human Capital**

### **3.4.1 Issues**

Tanzania is not the only country with insufficient numbers of skilled and experienced experts in ICT and in other professions that rely on ICT. It is therefore necessary to view Tanzania's human capital needs in the global context. Hard choices must be made between importing needed skills, or slowly nurturing them within the country. Other choices are needed on the priorities of realigning the educational and vocational training pipelines to meet the needs of our labour markets.

In addition, there are new opportunities in applying ICT to enhance education, including curriculum development, teaching methodologies, simulation laboratories, life-long learning and distance education and for teaching of not only ICT, but of all subjects and specialisations. If embraced appropriately and supported at all levels, these could transform the country's human capital.

### **3.4.2 Policy Objectives**

- a) Increase the size and quality of ICT-skilled human resource base in Tanzania.

- b) Expand and develop the teaching of ICT at all levels of the national system of formal and informal education and training.
- c) Use ICT to improve the quality of delivery of education and training in all areas including distance learning, as well as to enhance the learning experience itself.
- d) Expand and improve adult-education, life-long learning and both general and digital literacy programmes, notably for retraining and re-skilling the existing workforce.
- e) Encourage and support ICT training for political decision-makers, community and civil society leaders, as well as private and public sector executives.
- f) Give special attention to providing new learning and ICT access opportunities for women and youth, the disabled and disadvantaged, particularly disenfranchised and illiterate people, in order to address social inequities.
- g) Develop and deploy a nationwide e-Education system that supports schools, higher education/training facilities across the country by interconnecting them with each other and with relevant knowledge centres, providing curriculum integration while also generating information to better shape policies, strategic plans and tactical decisions for developing education and vocational training in Tanzania.
- h) To foster interest among Tanzanian Scientists to conduct research and development activities related to ICT.

### **3.4.3 Policy Challenges**

- i. Boosting the number of dedicated and qualified ICT professionals.
- ii. Refining the educational system.
- iii. Developing appropriate attitudes, knowledge and skills for ICT initiatives.
- iv. Integration of educational and vocational training opportunities.
- v. Creating appropriate employment and self-employment opportunities and related employment services for ICT and associated professions.
- vi. Creating opportunities for developing multi-skilled operatives and hybrid managers.
- vii. Evaluation and certification of “standard” ICT courses.
- viii. Developing remuneration and incentives packages for ICT-skilled staff with focus on retention schemes for skilled workers and moving from “brain drain” to “brain gain”.
- ix. Creating opportunities for job enrichment, productivity, enhancement or wealth creation through ICT.
- x. Creating conducive environment of research and development in ICT.

### **3.4.4 Policy Statements**

1. The Government will promote and support the development of qualified personnel for efficient policy-making, regulation and management of information resources and services including the education, training and retraining of ICT managers, professionals and other operatives.
2. The Government will require the teaching of ICT at all levels of the national system of public and private education and training in order to increase the size and quality of ICT-skilled human resource base in the country.

3. The Government will encourage and support formal and informal sectors to adhere to acceptable standards of examination and certification of ICT training programmes.
4. The Government in collaboration with the private sector will develop and put in place appropriately designed schemes of service for different cadres of ICT personnel in order to secure their retention and encourage innovative behaviour.
5. ICT deployment is to be especially inclusive and to proactively take into account gender and disadvantages groups.
6. The Government will encourage activities relating to life long training processes both formal and informal.

## **3.5 Legal and Regulatory Framework**

### **3.5.1 Issues**

Globalisation and the pervasiveness of the Internet have given rise to new types of needs, rights and vulnerabilities. For secure electronic transactions to occur, an environment of trust must be created and sustained through the legal and regulatory apparatus. Cyber-criminals around the world are constantly seeking loopholes through which to perform illegal or illicit businesses. Any country that has inadequate cyber-law is essentially offering a safe-haven for cyber-criminals to act with impunity.

Tanzania needs to create and sustain a secure cyber-law environment, in addition to already existing legislation, before any significant new developments can emerge in ICT related services.

### **3.5.2 Policy Objectives**

- a) Establish an enabling legal framework, aligned with Tanzania's constitutional provisions, legislative and regulatory environment, and consistent with regional and global best practices.
- b) Ensure that Tanzania does not become a haven of cyber-crime.

### **3.5.3 Policy Challenges**

- i. Mould the present legal framework and related institutional infrastructure, as it is not yet conducive to ICT development and application.
- ii. Address the inadequate regulatory capacity, especially in the face of convergence of networks and services.
- iii. Enacting specific and effective legislative instruments on privacy, security, cyber crimes, ethical and moral conduct, encryption, digital signatures, copyrights, intellectual property rights and fair trade practice s.
- iv. Create capacity for research in ICT-related legal and regulatory issues.

### **3.5.4 Policy Statements**

1. The Government will review existing laws and regulations in order to repeal or adjust those that are not conducive to the healthy growth of the ICT industry and enact new ones

that take account of issues associated with Internet Governance and the convergence of telecommunication, broadcasting and information systems.

2. The Government will set-up legal regulatory frameworks that are appropriate to the ICT sector taking into account that electronic transactions are also susceptible to electronic criminality.
3. The Government will have compelling interest in shielding contents inappropriate for minors or those that promote behaviour that might endanger minors and society.
4. The Government will promote business in electronic form in a secure environment and put in place a legal framework to provide the guiding principles, rules and legislation.
5. The Government will regularly carry out a review of policies and/or legislation in order to foster introduction of new services and technological innovation that will add value to the providers and end-customer of ICT enabled services.

## **3.6 Productive Sectors**

### **3.6.1 Issues**

Tanzania's GDP is heavily dependent on agricultural production, while mining and tourism are emerging rapidly. In all sectors, production is both from numerous small-scale artisanal producers as well as from a handful of multinational conglomerates. Each group of producers has its own ICT requirements, but so far not much has been done to facilitate access to the advantages of ICT for small-scale producers — either directly or through appropriate intermediaries.

### **3.6.2 Policy Objectives**

- a) Contribute to the reduction of poverty and improve the quality of life of Tanzanians.
- b) Foster enterprise, entrepreneurship and innovativeness for sustainable socio-economic and cultural development.
- c) Create a favourable climate for industry, business and investment to adopt ICT solutions.
- d) Develop and deploy a nationwide ICT system to support farmers, traders and extension workers in remote areas.
- e) Ensure that private and public development plans and projects in all sectors incorporate appropriate ICT.
- f) Avoid the adverse effects of globalisation, particularly the “hollowing-out” of local industries and tax revenues.

### **3.6.3 Policy Challenges**

- i. Coordination of trade links and e-markets.
- ii. Facilitation of resource allocation, and delivery.
- iii. Enhancement of productivity (especially in agriculture, industry and mining).
- iv. Making available relevant information such as weather, and other climatic trends.
- v. Developing better methods of management of land and water resources.
- vi. Our local industries working within the new global economy being exposed to the attendant risks of globalisation.

### **3.6.4 Policy Statements**

1. The Government will encourage all productive sectors to incorporate ICT in their development plans.
2. The Government will encourage, promote and support the implementation of nation-wide ICT systems for rural development activities, agricultural, horticultural and livestock extension for farmers, career guidance for youth, technology guidance for rural enterprises, micro-level planning, etc. Communities and user groups or beneficiaries shall be actively encouraged to participate in all such activities.
3. The Government will take steps to move Tanzania's economy into line with the new global economy while minimising the adverse effects of globalisation on the local economy and tax revenues.

## **3.7 Service Sectors**

### **3.7.1 Issues**

It is undeniable that all forms of public utilities and services in Tanzania can be significantly improved and expanded by embracing ICT. On one hand, the management and internal processes towards availing those services may be strengthened by investing in the appropriate use of office systems to support internal information flows, leading to greater accuracy and timeliness of executive decision-making, resource allocation, risk management and operational control. On the other hand, the use of ICT as part of the service delivery channel can lead to qualitative improvements for the direct benefit of clients. In some cases the client may interact directly with an ICT interface, like the increasing number of ATMs at banks that offer end-users services for 24 hours a day, 7 days a week, 365 days a year. In other cases the client interacts with intermediaries, like at air-travel agencies where travellers interact with an employee who then interfaces with ICT to book seats and sell tickets on international flights, even from towns without any airport.

A distinctiveness of the Service Sectors is that they also include the educational and vocational training sector, which is a cornerstone for development in all sectors as well as for progressing toward a knowledge-based environment. While this policy contains a specific focus area on Human Capital (see paragraph 3.4 above), the educational and vocational training sector is nonetheless also contextualised among the services that are to be generically addressed within the present focus area. This intended overlap offers a broader range of implementation options for that particular sector in view of its intense underlying criticality and its crosscutting nature.

### **3.7.2 Policy Objectives**

- a) Establish an environment conducive for e-commerce transactions and competition.
- b) Encourage more usage of ICT in financial services (banking, insurance, etc).
- c) Promote the use of ICT to enhance efficiency, effectiveness and continuity in the provision of services and basic utilities from both private and public sectors especially in billing and payment systems.
- d) Develop and deploy a nationwide e-Health system that supports medical facilities in the under-served areas.
- e) Develop and deploy a nationwide e-Tourism system.

- f) Encourage cyber-café owners to diversify their enterprises in order to build multiple revenue streams.

### **3.7.3 Policy Challenges**

- i. Developing and accessing market information.
- ii. Modernization of management systems and practices.
- iii. Introducing ICT supported access to health and nutrition services.
- iv. Taming the prevalence of HIV/AIDS and other infectious and communicable diseases.
- v. Managing proactive health care systems for preventive and curative services.
- vi. Matching Management Information Systems and ICT in the financial institutions including banking, insurance and capital markets.
- vii. Introducing Management Information Systems and ICT in the education, training and tertiary academic sectors for all fields of study.
- viii. Developing Management Information Systems and ICT in providing topical support and extension services to peasant producers and their communities in isolated rural areas.
- ix. Deployment of service quality improvement methodologies and standards.
- x. Improving tourism marketing and management (domestic and international).
- xi. Promotion of new postal communications services through the use of ICT.

### **3.7.4 Policy Statements**

1. The Government will promote the use of ICT to enhance efficiency effectiveness and sustainability in the provision of services and basic utilities by supporting the development and deployment of nationwide e-health, e-tourism, e-education and e-commerce transactions.
2. The Government will promote, stimulate and encourage the use of ICT to improve the provision of safe, comfortable and seamless transport infrastructure and services, both countrywide and linking Tanzania to the rest of the world.
3. The Government will also use both formal and non-formal channels to disseminate information about the application and advantages to communities of the use of ICT.
4. The Government will work with the private sector, organisations of civil society and other partners to promote, stimulate and encourage the use of ICT, in combination with traditional methods, to preserve and add value to national artistic and cultural patrimony.

## **3.8 Public Service**

### **3.8.1 Issues**

Since the mid-1990's, the public service of Tanzania has initiated a series of measures for transforming itself into becoming more efficient, effective, and customer-oriented. These efforts have put in place the foundations for what is now known as e-Government, while sectoral reforms recognise and promote the use of ICT in their respective sectors. Furthermore the Government collects and holds vast amounts of locally relevant information that may be converted onto electronic media for better preservation and cheaper accessibility by the public. Such information includes legislation, regulations,

procedures, forms, maps, research papers, and numerous statistics, which may be sold or shared free of charge as appropriate. Moreover, the Government's own policy-making, monitoring and decision-support processes can be greatly enhanced as access to authoritative, timely and accurate data becomes more widespread, and is coupled to enhanced knowledge-sharing internally within the public service.

As the country's biggest employer, the public sector's recruitment standards will necessarily influence the national labour market and the curricula of education and training institutions, whereby if ICT competencies permeate the public sector's recruitment requirements, then the other sectors will benefit too. For these reasons, the Public Service requires a specific emphasis in the National ICT Policy.

### **3.8.2 Policy Objectives:**

- a) Help increase the productivity of both the public and private sectors, by achieving the Government's intention to be a model user of ICT.
- b) Empower the public by building an e-Government platform that facilitates their relationship and interactions with the Government, and enhances the range and delivery of more effective public services at both central and local levels, while also generating accurate and timely information to better shape policies, strategic plans and tactical decisions for developing and enhancing the delivery of affordable public services.
- c) Promote good corporate and public governance by furthering information sharing, transparency and accountability.
- d) Enable public services to contribute meaningfully in achieving poverty reduction targets, in accordance to the priorities of the national Poverty Reduction Strategy Paper (PRSP).
- e) Enhance public participation.

### **3.8.3 Policy Challenges**

- i. Increasing productivity (efficiency, effectiveness and continuity) of the public service.
- ii. Creating an e-governance environment responsive to the needs of the citizens.
- iii. Improving accessibility and affordability of public services to the citizens, wherever they are.
- iv. Building efficient communications and knowledge sharing within the public service.
- v. Setting up harmonised information banks with uniform, consistent, up to date, and secure data and management systems.
- vi. Increasing the ICT awareness, knowledge and skills of public servants.
- vii. Introducing operational processes and institutional structures that are amenable to ICT application and deployment.
- viii. The capture, preservation, and dissemination of relevant government records and archives, and their potential use as multimedia content of significant local relevance.
- ix. Establishing safeguards on data systems to protect the privacy of individuals whose personal data is held, and the confidentiality of information about entities and activities as relevant.



### **3.8.4 Policy Statements**

1. The Government will be a model user of ICT by deploying ICT systems within the public administration itself to improve efficiency, reduce wastage of resources, enhance planning, raise the quality of services and access global resources.
2. The Government will support the application of ICT to promote good governance, transparency and accountability, and awareness of the implications of long-term ICT investment and total cost of ownership
3. The Government will deploy ICT extensively to strengthen law enforcement, security and national defence capability.
4. The Government will deploy ICT to monitor and respond to environmental disasters and to collect and disseminate information on environmental problems.
5. The Government will review its operational processes and institutional structures with a view to making them amenable to ICT application and deployment.

## **3.9 Local Content**

### **3.9.1 Issues**

One of the strengths of ICT is the way it can help unlock distant expertise, knowledge and markets. However, this access has its limitations. Easier access to global knowledge is rapidly turning many developing countries into consumers of distant and potentially irrelevant information. Developing countries are being invaded by foreign ideas and values that may undermine or overwhelm local cultural heritage and economic livelihood. If serious efforts about the use of ICT as an empowerment tool are to be made, then this foreign content must always be matched by the expression, collection and dissemination of local knowledge and content that is relevant to local situations. ICT needs to be a conveyor of locally relevant messages and information, providing opportunities for local people to interact and communicate with each other, expressing their own ideas, knowledge, heritage and culture in their own languages. Local content should also be perceived as a driver for local job and wealth creation.

### **3.9.2 Policy Objectives**

- a) Support the local creation and development of ICT applications and multi-media content for productivity, as well as for social interactions, culture and entertainment.
- b) Encourage the development of local content aimed at enhancing the understanding of prevailing topical issues and promoting tolerance of differing interpretations thereof.
- c) Promote the use of schools in developing and sustaining local multi-media content.
- d) Encourage the development of content for preserving the values, wisdom and acquired knowledge of our traditional communities and cultures.
- e) Promote the development of local content to support e- activities.

### **3.9.3 Policy Challenges**

- i. Building a national gateway as the focal point for locally generated content.
- ii. Repackaging traditions, cultures, indigenous knowledge, and traditional wisdom arts as potential multimedia content.

- iii. Availability of government-generated content (forms, procedural guidelines, etc).
- iv. Promotion of electronic publishing of local materials.
- v. Wider dissemination of materials held in libraries and archives.
- vi. Using the Kiswahili language for content creation.
- vii. Promotion of e-communities, and discussion groups.
- viii. Promotion of community participation in initiatives for compiling local content.
- ix. Popularity of inappropriate uses of ICT detrimental to our values, ethics and culture, for example viewing pornography on the Internet.

### **3.9.4 Policy Statements**

1. The Government will promote the use of the ICT for preserving and dissemination of indigenous knowledge and traditional cultures.
2. The Government will allow appropriate access to its archives and other information sources as a basis for developing local content.
3. The Government will encourage the wider use of Kiswahili in developing local content in order to promote local culture, attract local end users as well as the Tanzanian diaspora.
4. The Government will seek to discourage inappropriate use of ICT that is detrimental to our cultural values, ethics, mores, and morality such as viewing pornography.

## **3.10 Universal Access**

### **3.10.1 Issues**

The digital-divide can be summarised as a difference between people who can utilize and participate in the information revolution, and those who are not able to access the key production tools of the new information age, therefore being denied opportunities from not having information or knowledge. This problem of exclusion exists within both developed and developing countries, as well as between developed and developing countries.

To ensure that the national ICT policy does not exacerbate the digital divide among the people of Tanzania, it must contain provision for bringing access to the more remote areas of the country and those under served in urban areas.

Many universal access initiatives are currently occurring across Tanzania, but each is quite independent and no focal point exists for sharing resources and experience. To further reduce isolation, such initiatives need to be able to stimulate grass roots networking among themselves and with counterpart projects in other countries. This will also enable the services that are being deployed to reach a broader audience and to be enriched by being exposed to additional technical experts. Therefore the National ICT Policy is placing specific emphasis on Universal Access.

### **3.10.2 Policy Objectives**

- a) Promote literacy as a platform for digital competencies, awareness and empowerment, while building universal access and broad availability of opportunities in Tanzania;
- b) Provide citizens with universal access to ICT in order to improve their productivity and to broaden their opportunities for knowledge sharing and for generating local content;

- c) Provide special incentives for investors to deliver broadband connectivity to hitherto disenfranchised and isolated populations in the country;
- d) Encourage the use of existing community access points by schools and other learning institutions as part of their curricula and facilitate the construction of such access points within, or in easy reach of, their premises;
- e) Build awareness that investment in and through ICT in remote areas is a potent means of reducing the cost of rural-urban transactions; and
- f) Facilitate the creation of grass-roots networks for wealth-creation through trade, both within the country and internationally.
- g) Operationalise the Rural Telecommunications Development Fund.

### **3.10.3 Policy Challenges**

- i. Increasing ICT capacity in terms of bandwidth and the penetration of services.
- ii. Leveraging of community access points for provision of smart services.
- iii. Improving coverage of functional utilities that go hand in hand with ICT.
- iv. Developing locally relevant content that attracts users and adds value to their daily lives.
- v. Providing affordable access to ICT.
- vi. Integrating ICT within lifestyles and cultures.
- vii. Bringing awareness of benefits of ICT access and training to the public.
- viii. Developing peer-to-peer networking and knowledge sharing at grassroots level.
- ix. Encouraging partnerships among public, private and community sectors at all levels in support of universal access initiatives.
- x. Creating incentives for service providers to deploy services in rural and underserved areas as well as disadvantaged groups.

### **3.10.4 Policy Statements**

1. The Government will strive to reduce the ICT access gap between the rural and the urban areas by activating the Rural Telecommunication Development Fund, offering special incentives to investors in rural ICT provisions, supporting the construction of rural telecentres and involving local government authorities in ICT utilization and promotion.
2. The Government will continue to look into ways of reducing taxes on ICT related goods and services to make them affordable and accessible to more citizens.
3. The Government will encourage financial institutions to give particular support to investors in rural ICT services.
4. The Government will encourage and facilitate the optimal use of existing ICT capacity and infrastructure in order to extend affordable access nationally, and especially in rural and disadvantaged communities.
5. The Government will encourage allocation of extra capacity in telecommunication infrastructure to be used efficiently and economically for the national development of ICT.

## **4 INSTITUTIONAL FRAMEWORK FOR POLICY IMPLEMENTATION AND MONITORING**

### **4.1 Introduction**

**B**ecause of the multifaceted nature of ICT issues and the factors that impact on them, the implementation of this policy, and the consequent achievement of its goals and objectives will be the responsibility of the entire government at all levels and in all sectors, working in close partnership with the private sector and civil society. There is therefore a need for the active participation and involvement of all individuals and national institutions. There is also a need of a strong commitment on the part of the political leadership of all kinds and at all levels. In order to effectively coordinate and harmonize efforts and activities undertaken by many institutions in different locations, there is a need to put a mechanism in place which will ensure that the policy is updated from time to time and that implementation strategies and plans are drawn and carried out in the most efficient and effective manner. The final goal should be the deployment of ICT in all sectors of the economy and to all communities in Tanzania.

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