
THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF COMMUNICATIONS AND TRANSPORT



NATIONAL ICT POLICY OF TANZANIA
FIRST ORDER DRAFT

MAY 2002

NATIONAL ICT POLICY OF TANZANIA
(FIRST ORDER DRAFT [v3.2e])

TABLE OF CONTENT

Section Page

LIST OF ACRONYMS	3
FOREWORD	6
1.0 INTRODUCTION	8

1.1	Background	8
1.2	Vision	10
1.3	Mission	10
2.0	OBJECTIVES.....	.10
<u>2.1</u>	<i>Strategic ICT leadership</i>	11
<u>2.2</u>	<i>Legal and regulatory framework</i>	12
<u>2.3</u>	Capacity Building	12
<u>2.4</u>	ICT infrastructure	13
<u>2.5</u>	ICT industry	14
<u>2.6</u>	Productive sectors	14
	2.7 Service Sectors.....	13
<u>2.8</u>	<i>Universal access</i>	15
<u>2.9</u>	<i>Local content</i>	15
<u>2.10</u>	Policy context	16
3.0	STATUS OF ICT IN TANZANIA	16
	3.1	
	Access.....	16
	3.1.1	
	Infrastructure.....	16
	3.1.2 Internet	
	availability.....	16
	3.1.3 Hardware	
	software.....	17
	and	
	3.2	
	Learning.....	17
	3.2.1 Educational	
	access	
	to	
	ICT.....	17
	3.2.2 Enhancing	
	education	
	using	
	ICT.....	17
	3.2.3 Developing	
	the	
	ICT	
	workforce.....	17
	3.3	
	Society.....	17
	3.3.1 People	
	and	
	organisations	
	online.....	17
	3.3.2 Locally	
	relevant	
	content.....	18
	3.3.3 ICT	
	in	
	everyday	
	life.....	18

3.3.4	ICT in the workplace.....	18
3.4	Economy.....	18
3.4.1	ICT employment opportunities.....	18
3.4.2	e-Commerce.....	19
3.4.3	e-Government.....	19
3.5	Policy.....	19
4.0	CHALLENGES AND POLICY STATEMENTS	22
4.1	Strategic ICT leadership	22
4.2	Legal and regulatory framework	23
4.3	Capacity Building	24
4.4	ICT infrastructure.....	25
4.5	ICT industry	27
4.6	Productive sectors	28
4.7	Service sectors	28
4.8	Universal access to ICT	29
4.9	Local content	30
5.0	POLICY IMPLEMENTATION AND MONITORING	31
5.1	Institutional arrangements	31
5.2	Co-ordination, implementation monitoring and review	32
5.3	ICT investment prospects, funding and promotion	32
5.4	Strategies for policy implementation	32
5.5	Membership of NICTCOM.....	31
5.6	Funding of NICTCOM.....	31
	ANNEX A: DESCRIPTION OF THE TEN FOCUS AREAS	33
	REFERENCE MATERIALS	37

DEFINITIONS AND ACRONYMS

Broadcasting- A term referring to the distribution of information using radio and television.

Digital Divide- Refers to reflect 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 - Refers to business activities involving consumers, manufacturers, suppliers, service providers and intermediaries using computer networks such as the Internet.

Global Information Infrastructure (GII) – Refers to the components making up a wide area network arising from multiple heterogeneous networks, which facilitate multidimensional communication among different nations, business and organisations.

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 Technology (IT) - Embraces the use of computers, telecommunications and office systems technologies for the collection, processing, storing, packaging and dissemination of information.

Information Based Economy (IBE) - Refers to a country or region where ICT is used to develop economic foundation and market transactions.

Information Society (IS) - Refers to 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.

Knowledge Based Economy (KBE) – Refers to a country or region where ICT is extensively used to enhance knowledge of society in general so that higher human capital brings further improvement to the economy.

Receiving Devices – Refers to terminal devices, such as radio, television, set-top equipment, used in broadcasting.

Regional Information Infrastructure (SRII – SADC) – refers to infrastructure being put in place to link SADC countries.

Transmission Control Protocol/Internet Protocol (TCP/IP) – The suite of protocols used for communications between terminal stations on the Internet.

Integrated Services Digital Network (ISDN) – An international communications standard for transmitting voice, video and data using narrowband or broadband technologies.

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.

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.

Wireless Application Protocol (WAP)– A secure specification that allows users to access information instantly via handheld wireless devices such as mobile phones, pagers, two-way radios, smart phones and communicators.

Internet Service Provider (ISP) - Also known as Internet Access Providers – Is a company that provides access to the Internet.

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.

Country code Top Level Domain (CcTLD) - Refers to a high level Internet Protocol address to identify a country e.g. “tz” for Tanzania. This high level domain is a root domain that gives rise to other lower hierarchy domain names that are mapped to specific IP addresses within the high level domain, like internet. For example www.moct.go.tz is a domain name within the Tanzania domain, tz. As such a CcTLD is a valuable national resource for any country in this information age.

URT	-	United Republic of Tanzania
MCT	-	Ministry of Communications and Transport
EAC	-	East African Cooperation
NICTCOM	-	National Information and Communications Technology Commission
GDP	-	Gross Domestic Product
HRD	-	Human Resource Development
INTELSAT	-	International Telecommunication Satellite Organization
ITU	-	The International Telecommunication Union

NTP	-	The National Telecommunications Policy
PDCN	-	Public Data Communication Network
PSTN	-	Public Switched Telephone Network
R & D	-	Research and Development
RASCOM	-	Regional African Satellite Communication Organization
SADC	-	Southern Africa Development Community
TBC	-	Tanzania Broadcasting Commission
TBS	-	Tanzania Bureau of Standards
TCC	-	Tanzania Communications Commission
TTCL	-	Tanzania Telecommunications Company Limited
WRC	-	World Radio Conference
WTO	-	World Trade Organization
ZANTEL	-	Zanzibar Telecom Limited
ACG	-	African Communications Group
ADB	-	African Development Bank
CTN	-	Coastal TV Network
DANIDA	-	The Danish International Development Agency
DTV	-	Dar es Salaam Television
EU	-	The European Union
IDA	-	International Development Agency, A World Bank aid agency
ITV	-	Independent Television
PSRC	-	The Parastatal Sector Reform Commission
RTD	-	Radio Tanzania Dar es Salaam
SIDA	-	Swedish International Development Agency
SITA	-	Airline Telecommunications and Information Services.
TPTC	-	Tanzania Posts and Telecommunications Corporation
TRP	-	Telecommunications Restructuring Programme.

FOREWORD

I

Information and Communications Technologies (ICTs) encompass telecommunications services, computers and associated peripherals, Internet services, e-mail, fax, broadcasting, TVs, and other media. Rapid global technological changes have made ICTs services a prerequisite for socio-economic development that facilitates growth of all

sectors of the economy. ICTs provide access to information by people to enable them to share and exchange information, knowledge and experience, and thus empower them to easily encounter the challenges of everyday life. ICT services when appropriately applied, bridges the existing development gaps between the haves and the have not through free integration of information systems. ICTs are vital for good governance including gender balance, poverty reduction, and health and education service improvement.

Tanzania embarked on the development of ICT about five years ago. Initiatives to develop ICT were being carried out by individual, public and private entities making it difficult to optimise utilization of national meagre resources. However, Tanzania did realize some achievements which created the need for more concerted efforts for the establishment and development of a fully fledged national ICT Policy that will be responsible for the coordination of all matters related to ICT in the country. In April 2002, the Government appointed the Ministry of Communications and Transport as a National ICT Coordinator and a Focal Point for all ICT related issues.

The main tasks of the MCT were the formulation and preparation of a National ICT Policy document that will guide the provision of ICT services in Tanzania, and to recommend a suitable and sustainable institutional set up which will be responsible for the facilitation of ICT services to all sectors of the economy. The MCT is also required to create a conducive environment that encourages growth of public-private partnership in ICT development. MCT has now finalized the preparation of the draft National ICTs Policy document. The document has been prepared involving all stakeholders at different levels. It addresses pertinent issues that will lead into removing impediments, which hinder socio-economic development of the country. Policy statements and legal and regulatory issues outlined by this document need the highest order of coordination in order to realize benefits out of it, and also need each key actor/stakeholder to actively play its role.

The Ministry is officially submitting this draft Policy document to the government for consideration and approval for public consumption. The implementation strategy indicating priority list of project activities, actors, timeframe and project costs will be prepared after approval of the policy document. My appreciation should go to the national TASK FORCE for ICT development process, the e-think Tank, and all stakeholders and other individuals and institutions that were in one way or another involved in the development of this important document. Special thanks go to the Government of Sweden for their continued significant assistance in funding the preparation of this policy.

:

Prof. Mark J. Mwandosya (MP)

MINISTER FOR COMMUNICATIONS AND TRANSPORT

JUNE 2002

“It is not the strongest species that survive, nor the most intelligent, but the ones most responsive to change” Charles Darwin, *The Origin of the Species*

1 INTRODUCTION

1.1 BACKGROUND

R

apid technological advances since the end of the 20th Century have led to multiple convergences of content, computing, telecommunication and broadcasting. Leveraged by human capital, this has led to the creation of what is now referred to as Information and Communications Technology (ICT). Convergence of technologies has brought about rapid changes in other areas, particularly in knowledge management, covering aspects of knowledge creation, processing, storage, sharing, dissemination and assimilation; human resources development, in the levels of education and training as well as in work output and productivity. The ever-increasing capacity of ICT is further empowered by the rapid growth of a global network of computer networks known as the Internet. These multiple convergences have transformed the way in which business is conducted, revolutionized learning and knowledge sharing, generated global information flows, empowered citizens and communities in new ways that have redefined governance, and have created significant wealth and economic growth resulting in a global information society. The emerging knowledge-based economy and information society is underpinned by the extensive use of ICT and the global information infrastructure with near instant transactions and exchanges of information. These are carried out across borders and time barriers while creating knowledge and adding value. As a result of all these breathtaking changes, legal and regulatory regimes across the world have had to be adapted or created in order to facilitate new opportunities and defend against new threats.

The gap between those able, and those unable, to participate in the knowledge economy is now termed as the “*digital divide*.” The digital divide is evident in both within nations, and between the developing and the developed world. Recent positive steps have improved Tanzania’s position in this regard. However the current 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.

There is a good deal of evidence that ICT plays an important role in national and global economies. Important variables include the contribution of the ICT industry to the gross

domestic product (GDP) of national economies and the role that ICT can play in overall business investment. In the past few years, leading companies in the manufacturing and commercial or service sectors have considerably increased their investments in ICT products and services, in some case to as high as 75% of all investments in equipment, in order to boost productivity, efficiency and hence competitiveness.

Another area where ICT has been important is in employment. In several national socio-economic activities there has been an increase of employment of technicians, programmers, operators, assemblers and analysts in ICT-related jobs. Growth of employment opportunities is particularly strong in the software application area. The creation of new employment is often related to various uses of ICT. For example, there are significant new employment opportunities in deploying new service applications in banking, shopping, education, health, agriculture, business services, and in the growing areas of tele-working and software development.

There is also sufficient evidence that, in emerging knowledge societies, access to communication and knowledge is becoming the key tool for socio-economic and cultural inclusion. ICT offers new forms of communication that might address gender issues such as enabling women, the disabled and other disadvantaged groups to break through their often-isolated social situations. Although the full exploitation of opportunities that are in principle created by the deployment of ICT depend on social variables such as cultural factors and age, dynamic ICT policies are needed for ICT to have a beneficial and inclusive impact on the lives of disadvantaged groups in any society.

In view of the wide range of converging activities, the dangers of the digital divide, and the risk of being excluded further from the knowledge economy, the Government has determined that there is a need for a policy framework through which coordinating mechanisms and harmonized strategies might be nurtured. This policy framework will make 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. However since 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 application software), 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, with 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 also introducing new legislation to create the appropriate legal framework within which this policy will be implemented.

Over the years, notwithstanding the 1974 Prohibition Order on Electronic Computers and Television Sets, Tanzania achieved notable progress in deploying ICT. 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 certainly contributed to these achievements by investing in support facilities, training centers, sales outlets, etc., which enabled government departments, institutions of learning, NGOs, as well as other entrepreneurs, to acquire ICT solutions that address their individual problems most appropriately. However 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, a broad-based national strategy for deploying ICT to address Tanzania’s developmental agenda is needed.

Among other things, an effective ICT policy should be progressive while promoting cost-effective intervention; “inclusive”; fostering a fair and competitive environment; taking into account the development of human capital; having a mechanism for regular review; setting out the necessary institutional arrangements for sustainable implementation; but should not be “technology dependent.” Therefore, creating an appropriate environment is a *sine qua non* of this policy in taking into account these “best practice” attributes.

As the framework through which ICT will be integrated into Tanzania’s national developmental priorities, this National ICT Policy spells out the priority goals and objectives that will integrate ICT in improving living standards and quality of life of Tanzanians, creating a more informed society, while leading to their wider participation in the Global Information Society. Since it is not possible to be exhaustive, the policy spells out a series of high priority policy areas for socio-economic development, to guide the focus of public, private and community organisations, and of new partnerships among these.

However appropriate the policy may be, its implementation will not be automatic. Appropriate institutional arrangements must be created to ensure that all stakeholders can rise to the challenge of implementing this ICT policy. Such institutions and fora, while recognized and supported by government, will be based on the smart partnership of government, private sector and civil society, and will reside outside of government. Their terms of reference will include general coordination of ICT projects, overseeing policy implementation, monitoring and evaluation, and policy reviews. The time horizon of this policy is set at five years, with policy reviews carried out annually.

1.2 VISION

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

By exploiting its unique geographical position, Tanzania becomes a regional hub of ICT infrastructure providing ICT-based solutions that enhance sustainable socio-economic development, which addresses national and regional poverty reduction concerns.

1.3 MISSION

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

To coordinate ICT activities in the public and private sectors and to provide a conducive legal and regulatory framework for public and private infrastructure investments in e-Commerce capacity building (infrastructure and human resources), software and hardware development and production, and promoting regional and international cooperation.

2.0 OBJECTIVES

The ICT Policy's broad objectives are:

To provide a national framework that will enable ICT to contribute towards achieving national development goals; and

To transform Tanzania into a knowledgeable society through the application of ICT.

While the specific challenges and policy statements are articulated under Chapter 3 of this document, the policy's detailed challenges are as follows.

2.1 STRATEGIC ICT LEADERSHIP

Increase the use of ICT as an enabler for equitable and sustainable socio-economic and cultural development in Tanzania;

Raise the national level of awareness on the role and potential of ICT, especially in sustainable development, in the empowerment of people and in enhancing governance;

Create an authoritative national organization to effect and co-ordinate reviews of this policy, while continuously promoting and fostering growth in the local ICT industry;

Prioritise ICT investment in development assistance policies and programmes;

Enhance synergy, economies of scale and productivity through the co-ordination of initiatives that deploy or rely on ICT;

Create a favourable environment for cooperation and partnership in ICT between the public and private sectors and civil society, and between all stakeholders at local, national, sub-regional, regional and global levels;

Empower and facilitate Tanzania in participating in regional integration, in the world economy and in the global knowledge society.

2.2 LEGAL AND REGULATORY FRAMEWORK

Establish and maintain an enabling legal and regulatory framework, aligned with Tanzania's constitutional provisions, legislative and regulatory environment, and consistent with regional and global best practices;

Ensure that Tanzania does not become a haven for perpetrators of cyber-crimes;

Empower local authorities to become ICT users, promoters and participants, as well as direct beneficiaries in the regulatory processes;

Ensure that legislation is put in place to address intellectual property rights issues that are unique to the use of ICT networks; and

Carry out a review of policies and/or legislation on call back services, Internet telephony and Voice over Internet Protocol (VoIP).

2.3 CAPACITY BUILDING

Increase the size and quality of ICT-skilled human resource base in Tanzania;

Expand and develop the teaching of ICT at all levels of the national system of formal and informal education and training;

Use ICT to improve the quality of delivery of education and training in all areas including distance learning;

Expand and improve adult-education, life-long learning and both general and digital literacy programmes, notably for retraining and re-skilling the existing workforce;

Build awareness among Tanzanians that ICT's opportunities for spurring innovation in wealth creation and job performance is not restricted to large organisations, but also benefits farmers, artisans, micro-industry, as well as small and medium enterprises;

Encourage and support ICT training for political decision-makers, community and civil society leaders, as well as private and public sector executives;

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;

Promote the broad development, diffusion and exchange of content that is indigenous or locally relevant, with the participation of all relevant stakeholder groups

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.

Help increase the productivity of both the public and private sectors, by enhancing Government's intention to be a model user of ICT.

Empower the public by building a nationwide 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 information to better shape policies, strategic plans and tactical decisions for developing and enhancing the delivery of public services;

Promote good corporate and public governance by furthering information sharing, transparency, accountability;

Enhance public participation by reducing unnecessary red-tape within and between organizations, and between organisations and the public;

Contribute to the reduction and gradual elimination of regional imbalances and the gap between urban and rural locations in respect of access to opportunities for business and development;

Contribute to better understanding and mitigating differences among the segments of our society that have arisen from gender, age, disabilities, traditions and beliefs, etc.;

Contribute to the management of Tanzania's natural resources, and conservation of the environment; and

Facilitate and uphold wealth-creation, poverty reduction, job enhancement, and taking up opportunities for innovative entrepreneurial initiatives in Tanzania.

2.4 ICT INFRASTRUCTURE

Create a vibrant and sustainable ICT industry in Tanzania that is aligned to national priorities;

Foster efficient, inter-operable, reliable and sustainable national ICT infrastructures commensurate with grass-root needs, and compliant with regional and international standards, with increasing access while reducing cost of access;

Encourage regulatory organs to jointly investigate and respond to the challenges of convergence and newly emerging technologies, while drawing input from the general public and key stakeholders;

Establish mechanisms and participate in addressing new international policies and technical issues driven by ICT's new technologies and services including the Internet, the World Wide Web and non-terrestrial connectivity and the convergence of networks and communications services;

Foster the evolution of dynamic strategies that will address network security issues;

Encourage regulatory organs to collaborate at a regional level leading to the evolution of regional Internet development policies and infrastructure (national, regional and an African Internet Exchange points); and

Establish mechanisms that will result in least cost access to international broadband bandwidth for institutions or individuals in Tanzania.

2.5 ICT INDUSTRY

Contribute to efforts towards making the country a competitive developer and producer of ICT products and services;

Build direct relationships with the manufacturers and designers of ICT resources and move away from dealing mostly with intermediaries;

Promote ICT culture, general awareness and political e-readiness in Tanzania;

Provide accurate feedback to the Government on the impact of policies and measures on ICT market, while informing and advising on future courses of actions;

Inform the Tanzanian market on the full range of available options in terms of sourcing, licensing, upgrading and sustaining of ICT investments;

Promote special package-deals for micro-enterprises or for community organisations, where hire-purchase or leasing may be more affordable than outright purchasing;

Develop options and standards towards a local second-hand market in ICT equipment and accessories, to counter the threat of becoming an international dumping ground (i.e. avoiding turning Tanzania into a destination for e-waste); and

Encourage multi-sectoral initiatives that apply ICT for poverty reduction, employment creation, and opportunities for innovative entrepreneurial initiatives.

2.6 PRODUCTIVE SECTORS

Contribute to the eradication of absolute poverty and improve the quality of life for Tanzanians;

Foster enterprise, entrepreneurship and innovativeness for sustainable socio-economic and cultural development;

Create a favourable climate for industry, business and investment in the application of ICT solutions;

Develop and deploy a nationwide e-agribusiness system to support farmers, traders and extension workers in remote areas by interconnecting them with each other and with more advanced knowledge centres, while also equipping them with the means to generate better local information to shape policies, strategic plans and tactical decisions for developing national agribusiness; and

Ensure that private and public development plans and projects in all sectors incorporate appropriate ICT.

2.7 SERVICE SECTORS

Establish a conducive environment for e-commerce transactions and competitiveness at the local, sub-regional, regional and global levels;

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;

Develop and deploy a nationwide e-Health system that supports medical facilities in the under-served areas by interconnecting them with well staffed and equipped centres, while also generating information to better shape policies, strategic plans and tactical decisions for developing the national health sector;

Develop and deploy a nationwide eTourism system that responsively integrates the priorities of the sector's stakeholders (e.g. hotel-keepers, caterers, transport-operators, natural resource managers, local authorities, public utilities, etc.), while meeting the expectations of domestic and foreign travellers and also generating information to better shape policies, strategic plans and tactical decisions for developing the national hospitality industry sector;

Support and nurture initiatives towards developing business-service consultancies and web-development services, both on the web and offline;

Encourage cyber-café owners to diversify their enterprises in order to build multiple revenue streams, allowing them to frequently upgrade their capital stock and release locally adapted and professionally maintained second-hand equipment to the markets.

2.8 UNIVERSAL ACCESS

Promote literacy as a platform for digital competencies, awareness and empowerment, while building universal access and broad availability of opportunities in Tanzania;

Provide citizens with universal access to information in order to improve their productivity and to broaden their opportunities for knowledge sharing and for generating local content;

Promote local initiatives towards providing community-based access to the internet or to knowledge and information from the internet (eg. weather forecasts, tide-height predictions, product prices, financial advisory services, etc.) in order to support the day-to-day decision making requirements of the members of those communities;

Provide special incentives for investors to deliver broadband connectivity to hitherto disenfranchised and isolated populations in the country;

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;

Build awareness that investment in, and through ICT in remote areas, is a potent means of reducing the cost of rural-urban transactions, thereby mitigating one of the leading causes of rural-urban migration;

Encourage the contribution of *pro-bono* advisory services from large organisations to the on-line communities that are created through universal access initiatives; and

Facilitate the creation of grass-roots networks for wealth creation through trade, both within the country and internationally.

2.9 LOCAL CONTENT

Support the local creation and development of ICT applications and multi-media content for productivity, as well as for social interactions, culture and entertainment;

Encourage the development of local content aimed at enhancing the understanding of prevailing topical issues and promoting tolerance of differing interpretations thereof;

Promote the use of schools in developing and sustaining local multi-media content;

Encourage the development of content for preserving the characteristics, wisdoms and acquired knowledge of our traditional communities and cultures; and
Promote the development of local content to support e-education activities.

2.10 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. 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 the 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. The broadly defined objectives of the Development Vision 2025 document and those of this National ICT Policy are aligned as follows:

High Quality Livelihood:

Service Sectors

Availability of Universal Access

Peace, Stability and Unity:

Strategic ICT Leadership

Legal & Regulatory Framework

Good Governance:

Public Service (e-Government)

ICT infrastructure

A Well-educated and Learning Society:

Human Capital

Local Content

A Strong and Competitive Economy Capable of Producing Sustainable Growth and Shared Benefits:

Productive Sectors

STATUS OF ICT IN TANZANIA

A

Available e-readiness studies in Tanzania show that the country is gradually entering the global information society. This chapter summarises the current status of ICT in Tanzania and highlights the gaps that need to be addressed if the country is to be positioned appropriately in the new knowledge-based age and society.

3.1 ACCESS

3.1.1 Infrastructure:

Tanzania's teledensity is still low, with the number of fixed lines currently standing at 6 telephone lines per 1000 people (i.e. a teledensity of 0.06%) in the country 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.

Tanzania's Public Switched Telephone Network (PSTN), a hybrid backbone (i.e. analogue and digital) network using fibre optic, microwave and satellite-based links is now over 95% digital, which paves the way for allowing the provision of new services enabled by ICT. However, the coverage of the network infrastructure is still limited to urban areas and thus lack of the telecommunications infrastructure in the rural areas remains a basic impediment to the provision of such new ICT services. What is really required is to have an infrastructure that has capacity, speed, extensive coverage and necessary reliability in line with the new paradigm in the industry that converges the services offered on the PSTN (a circuit-switched technology) on the packet-switched data networks, especially those using the Internet Protocol (IP) technology. Operators and

providers of voice, data and even broadcasting will have to make the requisite upgrading to accommodate these requirements.

With regard to broadcasting, Tanzania has a liberalised 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 fall short of the sentiments expressed in the Broadcasting Services Act, 1993 and consists mainly of imported material and sports coverage, it is understood that this imbalance is being addressed by both the regulatory authority, and the providers of those services.

3.1.2 Internet Availability

The Tanzania Communications Commission (TCC) has licensed six companies to provide public data communication services including Internet bandwidth. However, 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, and 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. This is an inappropriate use of a scarce and expensive resource that increases the cost of local Internet access for users.

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. Cafés are now emerging in Arusha, Dar es Salaam, Dodoma, Morogoro, Moshi, Mtwara and Tanga with most of them located in Dar es Salaam. Available e-readiness studies suggest that there is a large unsatisfied demand in the country for Internet access.

3.1.3 Hardware and Software

There is no local manufacture of ICT equipment in Tanzania. Instead, some local dealers or agents of manufacturers who have opened up branches in the country, import computers. Few local companies are developing computer application packages. Most of the software used by banks, multinationals, large private sector companies, schools, universities, and in government Ministries, Departments and Agencies are imported at considerable cost. Overall, Tanzania has a small emerging skilled capacity to support the ICT industry in terms of hardware and software.

3.2 LEARNING

3.2.1 Educational Access to ICT

Currently very few pre-college facilities (Primary and Secondary Schools and Teacher's Training Colleges) have computer laboratories. 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. Internet access bandwidth at these institutions is limited ranging from 32 kbps – 512 kbps.

3.2.2 Enhancing Education Using ICT

There is an official Secondary School Computer Studies Syllabus for Forms I – IV developed in 1996 and issued in 1997. However, only very few students have taken these

courses so far. The lack of a programme for training teachers of computer studies has been identified as another reason for slow take up of computer studies in primary and secondary schools. Generally, the use of ICT enhances effective delivery of education. Currently, this benefit is only evident in some colleges. It is also noteworthy that some schools and institutions of higher learning have their own websites. But these websites typically provide one-way communication.

3.2.3 Developing the ICT Workforce

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

3.3 SOCIETY

3.3.1 People and Organisations On-line

The majority of people in Tanzania, mostly young (16 –25 years old), unemployed and located in Dar es Salaam, access the Internet through Internet Cafés. There is active registration on the Web, and there is some advertising of online information through traditional media, mostly through newspapers and television. There is a need to reduce barriers to deploying ICT and also required human capital development for sustainable participation in the ICT industry.

3.3.2 Locally Relevant Content

While there are many Tanzanian websites, most of these are in English, are not updated regularly, and appear to be merely advertising a presence on the Web. There are a number of vibrant websites with the majority publishing local news on the Web, while others demonstrate 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. The national website has links to websites that are either Tanzanian, or are focused on Tanzania. The national website is found at www.tanzania.go.tz/national_websitef.html.

3.3.3 ICT in Every Day Life

There is already a significant improvement in the penetration of fixed and mobile telephone lines, introduction of public pay-phones, and a growth in the number of Internet Cafés in Dar es Salaam and other 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.

3.3.4 Workplace ICTs

There is sufficient evidence that several large banks, multinationals and large companies make extensive use of networked computers, some with Internet access available on the networks. The banking sector makes heavy use of ICT to provide improved customer service with some of the banks using VSATs to interconnect their branches and cash dispensing ATMs.

However, anecdotal evidence suggests that smaller companies, and many institutions outside Dar es Salaam make marginal use of ICT in their daily operations. Owners of businesses cite various obstacles, which includes high cost of services such as international telephone calls, Internet access and maintenance services. This is counterbalanced by the removal of taxes and duties on imported computers from financial year of 2001/2002 as a significant and extremely positive step.

The greatest obstacle to effective use of ICT in the workplace according to the Survey and the e-Readiness Report is the low capacity of human capital in the use and maintenance of ICT.

3.4 ECONOMY

3.4.1 ICT Employment Opportunities

There is credible evidence that ICT is being driven, to a larger extent, by the private sector. However, 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.

3.4.2 e-Commerce

Only one local website 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 that needs to be updated urgently. Most significantly, the legal framework does not provide adequate safeguards to create an environment of trust for e-business transactions to be established. Consequently, financial institutions have not set up provisions for supporting e-transactions for their own, and each other's clients. Moreover, Tanzanians are almost wholly used to cash transactions, thus there will be need for a culture-change to enable non-cash transactions to grow. In part, this will require assurance of secure transactions and dispute resolution mechanism in a well-regulated environment. With the secure environment in place, an awareness campaign will be needed to publicise the advantages of e-business transactions, plus the types of skills required.

3.4.3 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-governance and e-government solutions. In the former category, the government has created an umbrella website at www.Tanzania.go.tz. Through this website it is possible to access a considerable amount of information on the country and its government. However the website only communicates to the citizen, and not from the citizen to government. This is a primary stage of e-governance. In addition, there are several ministries, departments or government agencies (MDAs), and Tanzanian embassies or high commissions abroad that have their own websites. However in every case the websites are one-way.

In the category of e-government, several MDAs are transforming their operations by deploying ICT. Some of the most significant examples include the Integrated Financial Management System at Treasury, the deployment of Platinum in the Local Government Reform Programme, the Integrated Human Resources and Payroll System at the Civil Service Department, the Tax Administration Project at the Tanzania Revenue Authority, the e-Diplomacy initiative of the Ministry of Foreign Affairs, and International

Cooperation and the Ministry of Defence's Independent Telecommunications Network initiative. All of these are very large projects with significant ICT components. Each, in their own way, is reaping significant rewards for government and her citizens.

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.

3.5 POLICY

T

he Communications Act was enacted in 1993 and the National Telecommunications Policy (NTP) was adopted in 1997. The Telecommunications sector has been partially liberalised with an independent regulator, and competition in mobile telephone, data communications services, and value added services. However, the partially privatised PSTN operator enjoys a monopoly on basic telephony services and international traffic until early 2005. While there is provision for a Rural Telecommunication Development Fund, this has not been implemented fully, and falls short of providing universal access in the liberalised environment.

Since the financial year 2001/2002, all taxes and duties on computer equipments have been abolished. This has been enthusiastically received by the private sector, but it is unclear whether taxes and duties on computer peripherals and software have also been abolished.

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 to align them with the National ICT Policy.

4. CHALLENGES AND POLICY STATEMENTS

A

As already shown under policy context, each of the ten focus areas below can be ascribed to the aspirations of Tanzania's Vision 2025. Less evident, however, is that each of the focus areas has a considerable overlap with every other focus area, therefore having a supporting role towards other aspirations of Vision 2025. Therefore, these areas should be interpreted, not as sequential steps, but as elements of a multi-dimensional space with numerous cross-cutting themes. This crosscutting characteristic is one of the main reasons why a coherent ICT policy is urgently needed; so that all the other sectors may have a basis to address ICT issues appropriately within their own strategies. The focus areas are described in Annex A.

4.1 STRATEGIC ICT LEADERSHIP

Challenges

Policy and co-ordination mechanisms;

Awareness among leaders and the public, digital awareness, literacy and acceptance and political championing of ICT in development;

Promoting ICT to further productivity among the sectors that are key drivers of the national economy (notably: education, health, agriculture, tourism, mining, trade, etc.)

Prioritising of development assistance in ICT;

Adequacy of national strategic vision on ICT;

ICT sector parameters and indicators;

Participation in global governance of ICT and the Internet;

Mobilization of conducive environment for ICT development (GDP);

Poverty reduction strategies;

Rural/Urban imbalances;

Addressing the emerging opportunities and vulnerabilities occasioned by the growing dominance of e-commerce in the new global economy; and

Promotion of regional integration and international cooperation.

Policy Statements

The Government shall use ICT as a tool for the integration of all citizens, including disadvantaged groups and the youth, into social, economic and cultural activities, empowerment, gender balancing, and fighting endemic communicable and infectious diseases — especially HIV/AIDS — so as to reduce poverty and improve the quality of life of Tanzanians;

The Government shall promote the creation of bilateral relations and cooperation with potential organizations that generate, process, store and/or disseminate information at international level and those, which promote the development of ICT services. It shall be the policy of the government to participate, to as large an extent as possible, in regional and international ICT initiatives, programs and systems, in order to maximize the opportunities for policy makers, information professionals, information managers, and other key individuals concerned with the provision and operation of ICT infrastructure, to share experiences with their colleagues, hear first hand the advice offered by experts and other highly informed leaders in various fields, and publicize the country's effort to enhance its national information infrastructure;

The Government shall ensure that law enforcing agencies use ICT to ensure safety and security of life and property of the citizens and guests of Tanzania;

It shall be the policy of the Government to encourage and support defence forces and security agencies in using ICT to the full extent to increase their efficiency and effectiveness;

Encourage public, private and community sector partnerships to jointly invest in access infrastructure - emphasising broadband connectivity - and in ICT commerce, support services, training and local software applications and content;

Create necessary enabling environment to facilitate the deployment, utilization and exploitation of ICT within the economy and society;

Allocate part of GDP by the government on annual basis in ICT development, diffusion and universal access; and

Apply ICT to strengthen law enforcement, security and national defence capability.

4.2 LEGAL AND REGULATORY FRAMEWORK

Challenges

Legal framework and related institutional infrastructure is not yet conducive to ICT development and application;

Regulatory capacity, especially in the face of convergence of networks and services is inadequate in quantity, quality, diversity and lacks technological capacity;

Specific and effective legislative instruments on privacy, security, cyber crime, ethical and moral conduct, encryption, digital signatures, copyrights, intellectual property rights, fair trade practices, and anti-trust practices; and

Emerging technologies including VOIP, IXP, mobile satellite, next generation Internet.

Policy statements

The Government shall provide a consolidated effective legal and regulatory framework, offering a conducive environment for the development of ICT and taking account of issues associated with the convergence of telecommunication, broadcasting and information systems, so as to open new opportunities to the citizens of Tanzania in line with their Constitution;

The Government shall set-up policy and regulatory frameworks that are appropriate to the ICT sector while taking cognisance of the pervasive nature of e-commerce, digital broadcasting and e-participation, and the challenges pertaining to legal and security matters as well as human and property rights;

The Government shall ensure that copyright and intellectual property remain relevant and effective in the country by protection of privacy as well as security of information systems through appropriate legal instruments. It shall be the interest of the Government to protect free expression by guaranteeing that citizens can use ideas for their own benefit, while respecting the rights and benefits of others. The Government, while acknowledging that national security and law enforcement consideration can sometime override privacy rights; it nevertheless notes the importance of encryption to maintain privacy;

The Government shall promote local content and have compelling interest in shielding contents inappropriate for minors or those that promote behaviour that might endanger minors and society;

The Government shall support and promote the creation of an information network which can make easy access to an exchange of data and information with national, regional and international systems and services; and ensure that people of all categories in all localities have easy access to a wide range of information sources through the development of information networks and resource sharing programs. In this context, interoperability of ICT networks, interconnectivity between institutions and exchange of knowledge shall be actively encouraged and supported;

The Government shall promote the development and/or acquisition of flexible standard information processing methods and facilities and their ultimate pursuance by all users of ICT in the national network to effect or ensure compatibility; and

The Government shall promote business in electronic form in a secure environment and put in place a legal framework to provide the guiding principles, rules and legislation.

4.3 CAPACITY BUILDING

Challenges

General and professional ICT literacy to boost the number of dedicated and qualified ICT professionals, and hybrid managers;

Quality of the educational system;

Processes for curriculum development, syllabus creation and management of national examinations;

Attitudes, knowledge and skills for ICT development initiatives;

Integration of educational and vocational training opportunities;

Appropriate employment and self-employment opportunities and related employment services (eg. ICT professional profiles, job descriptions, labour market information and career counselling) for ICT and associated professions;

Opportunities for developing multi-skilled operatives and hybrid managers;

Evaluation and certification of “standard” ICT courses;

Remuneration and incentives for ICT-skilled teachers, auxiliary staff with focus on retention schemes for skilled workers and moving from “brain drain” to “brain gain;”

Opportunities for job enrichment, productivity enhancement or wealth creation through ICT;

Productivity (efficiency, effectiveness and continuity) of the public service e-governance environment, responsive to the needs of the citizens;

Accessibility and affordability of public services to the citizens, wherever they are

Efficient internal communications within the public service (MDAs, local authorities, and representatives abroad);

Harmonised information banks with uniform, consistent, up to date, and secure data

Level of knowledge, awareness, and skills-mix of ICT of public servants;

Operational processes and institutional structures that are amenable to ICT application/deployment;

Capture, storage, and dissemination of relevant government records and archives, as potential multimedia content of significant local relevance; and

Promotion of Open Source software and services for internal use.

Policy Statements

The Government shall promote and support the development of qualified personnel for efficient policy-making, regulation and management of information resources and services, including the education and training and retraining of ICT managers, professionals and operatives in ICT and give appropriate professional certification and recognition;

The Government shall encourage and support formal and informal sector to adopt internationally accepted standards in training programs and to introduce globally acceptable standards like professional certification examinations;

Develop national human resource capacity to meet the evolving demands of the knowledge economy and information society:

International cooperation in ICT educational programs; and

ICTs in e-education to rural areas, disadvantaged groups and underserved areas;

The Government shall use ICT systems within the public administration to improve efficiency, reduce wastage of resources, enhance planning and raise the quality of services. It shall be the policy of the Government to stimulate the use and modernisation of ICT in its operations in order to foster improved productivity of public and private sectors so as to improve service delivery, government and society relationships (accountability), political processes, respect for the rule of law, and fight corruption;

The growing environmental problems have endangered the national communities including human existence. In this era of the global village, ICT can help build capabilities to fight against environmental degradation. The Government shall therefore use ICT to make a valuable contribution to sustainable environmental management by improving monitoring and response systems, facilitating environmental activism and enabling more efficient resource use, deploying ICT extensively to monitor and respond to environmental disasters;

The Government shall create awareness about the environment by deploying ICTs to collect and disseminate information on environmental problems and their causes;

Make the Government a model user of ICT and thus encourage the expansion of the local ICT industry; and

National security, defence, and disaster relief management.

4.4 ICT INFRASTRUCTURE

Challenges

Adequacy of ICT infrastructure in terms of technology, capacity, speed, coverage, affordability of services, equipment and facilities;

Connectivity issues (cost of procurement, frequency spectrum management, network standardization, and tariff harmonization);

Convergence of voice, data, computing and video (multimedia services, VoIP);

Mobilization of strategic investments;

Compliance with international and regional ICT infrastructure standards; and

Access to basic socio-economic and cultural services other than telecommunications

Policy Statements

The Government shall ensure that a reliable state of the art ICT infrastructure, of adequate capacity, high-speed and coverage is developed;

The Government shall support, through budgetary allocations to information institutions such as libraries, multipurpose community centres, documentation centres and those institutions actively involved in the development and the application of ICT, for building the information infrastructure and to ensure that adequate human resources, finance and other resources are in place to sustain the infrastructure;

Develop national and, specifically, national IXPs and hierarchical IXPs, through collaboration with other countries, regional information and communications infrastructure;

Encourage appropriate lending mechanisms that foster a dynamic climate for entrepreneurs to venture into ICT and related sectors; and

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.

4.5 ICT INDUSTRY

Challenges

Maintenance and after sales services;

ICT project management capacity;

Availability and affordability of hardware and software solutions;

Dumping;

Appropriate financing and fiscal mechanisms for ICT entrepreneurs, especially for start-ups (e.g. incubation, monitoring);

Promotion of ICT culture in Tanzania;

Involvement of the private sector;

Local software development;

Development of locally relevant content; and

In-sector networking and partnering

Policy Statements

The Government shall 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. The Government shall be responsible for creating a hospitable environment for Research and Development investment and support and conducting certain pilot projects to demonstrate or catalyse initial demand;

The culture of innovation and entrepreneurship is an essential tool for the growth and success of the ICT industry. Therefore, the process of innovation from the basic ICT research and development through diffusion of ICT into the economy as a whole will be actively encouraged;

The Government shall 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;

The Government shall encourage and support local institutions, in partnership with foreign owned multinational companies to establish production facilities, research, and design and manufacture specialized ICT equipment locally;

The Government shall provide leadership and set out conducive conditions for the development of markets and use of ICT, and create a spirit of partnership with the private sector for ICT development; and

The government shall encourage and support the development of the local ICT industry to facilitate the production, development, and deployment of products and services nationally and internationally.

4.6 PRODUCTIVE SECTORS

Challenges

Respect for natural resources and preservation of the environment;

Coordination of trade links and e-markets;

Facilitation of resource allocation, delivery and storage;

Enhancement of productivity (especially in agriculture, industry and mining);

Availability of information on weather, tides, geological, seismology and climatic trends;
and

Management of land and water resources (resource mapping, remote sensing, etc)

Policy Statements

The Government shall promote, stimulate and encourage the use of ICTs in order to harness the full potential of the agricultural industry; and

The Government shall promote, stimulate and encourage the use of ICT in order to harness the full potential of the Mining Industry.

4.7 SERVICE SECTORS

Challenges

Market information;

Modernization of management systems;

Integrated transport planning and management;

ICT supported access to health services;

Prevalence of HIV/AIDS and other infectious and communicable diseases;

Proactive health care systems for preventive and curative services (especially for M.C.H.);

Management Information Systems and ICT in the health sector (e.g. patient records, occupational health statistics, etc);

Management Information Systems and ICT in the education, training and tertiary academic sectors;

Management Information Systems and ICT in providing topical support and extension services to peasant producers in isolated rural areas;

Deployment of service quality improvement methodologies and standards (e.g. client service charters);

Holistic and cross-sectoral planning;

Tourism marketing and management (domestic and international); and

Promotion of professional and civil society.

Policy Statements

The main focus in health care shall be the use of ICT to deliver new capabilities for hospitals and healthcare providers, specifically in the areas of electronic medical records, tele-medicine, and medical and health education;

The Government shall promote, stimulate and encourage the use of ICT in order to harness the full potential of the tourism industry and natural resources;

The Government shall encourage, promote and support the implementation of Nation-wide ICT systems for rural development activities, agricultural, horticulture 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;

The Government shall 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;

The Government will promote, stimulate and encourage the use of ICT to enhance the quality of services and integration of sectoral management for education, tourism and rural extension sectors;

The Government shall also use both formal and non-formal channels to disseminate information about the application and advantages to communities of the use of ICT;

It shall be the policy of the Government to stimulate, encourage, and promote the use of ICT in all possible means of transportation in order to enhance efficiency, improve customer services and logistics, security, and decision making; and

The Government shall 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.

4.8 UNIVERSAL ACCESS TO ICT

Challenges

ICT capacity in terms of bandwidth and the penetration of services;

Leveraging of community access points (markets, post offices, etc);

Coverage of functional utilities (water, education, power, transport, communications, health care, food, etc);

Locally relevant content that attracts users and adds value to their daily lives;

Cost of access;
ICT integration within lifestyles and cultures;
Availability of awareness and training on ICT;
Peer-to-peer networking and knowledge sharing at grassroots level;
Partnerships among public, private and community sectors at all levels in support of universal access initiatives;
Incentives for provision of services to rural and underserved areas as well as disadvantaged groups; and
Universal access licence obligations for operators.

Policy Statements

Encourage use of ICT in sectoral projects or initiatives that address national socio-economic development priorities; and
Take ICT to the masses by effectively institutionalising the use of digital technology in sharing information, knowledge, expertise and business in day-to-day activities.

4.9 LOCAL CONTENT

Challenges

National gateway as the focal point for locally generated content;
Traditions, cultures, arts as potential multimedia content (capture, storage, dissemination thereof);
Market access for artisans and small scale producers;
Capture storage and dissemination of indigenous knowledge and traditional wisdom;
Availability of government-generated content (forms, procedural guidelines, etc);
Promotion of electronic publishing and digitalising;
Wider dissemination and cross-referencing of materials held in libraries and archives;
Public domain tools and facilities for developing and publishing local content;
Availability of open-source software, training and support services;
End-user targeted content development;
Promotion of e-communities, discussion groups, community radios and publications; and
Promotion of popular participation in initiatives for compiling local content from within communities.

Policy Statements

The Government shall promote, stimulate and encourage the formation of diverse public and private media institutions and provide enabling environment for provision of quality products and services using ICT; and

It shall be the policy of the Government to strengthen the indigenous generation of all types of information (local content), to widen its range, scope and to improve the quality of information sources services, systems, networks, products and carriers.

5.0 POLICY IMPLEMENTATION AND MONITORING

5.1 INSTITUTIONAL ARRANGEMENTS

I

In recognition of the cross cutting nature of ICT, its multi-dimensional nature and the need to cautiously segregate policy, regulatory and commercial activities, it is envisaged to establish as a public-private and civil society partnership, the National Information and Communication Technologies Commission (NICTCOM) with a broad mandate to promote ICT for Tanzanian development and to provide a home for the National ICT Policy. The objective for this institution is to ensure that all policy statements and directions are properly translated into action and implemented effectively.

Mode of establishment: Three options to form the institution proposed above include:

Presidential decree; or

Act of Parliament; or

Company formation as non-profit organization.

The institutional home and reporting line of NICTCOM will be determined depending on its mode of establishment, and will take into account a variety of factors. The main factor

is the crosscutting, multi-sectoral, and multidimensional nature of ICT; the institutional home and reporting line must reflect this multiple-capacity.

The NICTCOM will be responsible for performing the following functions among others:

Advise the government on updating the National ICT Policy from time to time at least on yearly basis;

Create, adopt and update legal and regulatory frameworks from time to time and submit proposals to the government for action;

Foster a harmonised competitive environment particularly in the public-private and community based sectors;

Design mechanisms to supply feedback on implementation issues for further policy formulation and review;

Encourage the implementation of this policy, set targets and performance indicators, and monitor the progress of implementation;

Provide mechanisms for stakeholders to be involved in the implementation of policy, and the policy review and re-formulation process;

Conduct and promote research into issues and ICT developments as they arise, feeding the research results back into the policy formulation process;

Monitor and react to issues of ICT and digital policy, regulation, development, technology and governance at national, sub-regional, regional and global levels; and

Become the focal point for coordinating ICT related activities.

5.2 CO-ORDINATION, IMPLEMENTATION MONITORING AND REVIEW

NICTCOM will perform the roles of coordination, implementation, monitoring, evaluation and review of national ICT programmes and activities. Some of these activities may be conducted by outsourcing, or in innovative partnerships with private, public and non-profit sector organizations.

5.3 ICT investment prospects, funding and promotion

For the population to have real access to ICT services, various factors have to be considered: the cost of access; the opportunities offered by local infrastructure and adapted services and content; access to ICT projects financing and status of the promotion of ICT. Other factors are suitable regulatory and legal framework; economic environment and political will.

5.4 Strategies for policy implementation

It is envisaged that strategies for the implementation of National ICT Policy would mainly be coordinated, monitored evaluated and reviewed by NICTCOM. A National ICT programme of activities will be prepared in collaboration with other stakeholders.

Membership of NICTCOM

Funding of NICTCOM

ANNEX A: DESCRIPTION OF THE TEN FOCUS AREAS

A.1 STRATEGIC ICT LEADERSHIP

Tanzania's ICT environment has hitherto lacked a focused ownership and authoritative guidance that takes into account the multi-sectoral nature of ICT itself. Initiatives have therefore been fragmented, while key players have been segregated at the cost of duplicated efforts, loss of potential synergies and unexploited economies of scale. As a result, ICT has had less exposure on the political arena than it merits, which has meant lack of impetus for resource commitments and a dependence on foreign funded initiatives.

Clearly, it is imperative that efforts be urgently dedicated towards building strategic oversight and leadership capability to bring cohesiveness to the ICT environment, otherwise it will be difficult for partnerships and collaborative efforts to develop. Such leadership will also help future initiatives to mesh with national priorities, be aligned to sector strategies and be in harmony with the down-to-earth realities and expectations of stakeholders.

Other sectors also have roles to fulfil so that ICT can develop, and the Leadership element of this policy will be responsible for ensuring that such cross-sectoral issues are addressed effectively. Promoting broad-based awareness, with inclusive consultation processes, will be another of the tasks of Leadership, which will also have to encourage the expression of differing interests in order to build a viable consensus amongst the diverging priorities and time frames.

Leadership is particularly important towards resourcing, to create an attractive fiscal environment for investors and consumers, to identify areas needing priority funding and support, and to obtain and direct resources from either internal or international sources for local initiatives. Consequently, leadership necessarily requires institutional development for organisations involved in ICT to have an established reference point, and for political and executive responsibilities to be assigned towards delivering this policy. Therefore Strategic ICT Leadership is accorded specific emphasis within the national ICT policy.

A.2 LEGAL AND REGULATORY FRAMEWORK

G

Globalisation and the pervasiveness of the Internet have given rise to new types of needs, rights and vulnerabilities associated with the new types of data and technologies. For secure electronic transactions to occur, an environment of trust must be created and sustained through the legal and regulatory apparatus, taking cognisance of constitutional rights as well as the provisions of criminal, civil and commercial law.

Meanwhile, cyber-criminals around the world are constantly seeking loopholes through which to perform malfeasance such as transacting illegal or illicit businesses, perpetrating fraudulent affairs, propagating computer viruses, or gaining unauthorised access into networked systems. Any country which has inadequate cyber-law is essentially providing a safe-haven for cyber-criminals to act with impunity, a situation which is detrimental to that entire country in terms of the trustworthiness of all of its electronic transactions.

Therefore, Tanzania urgently needs to create and sustain a secure cyber-law environment, in addition to our very recent Intellectual Property Law, before any significant new developments can emerge in service areas. Therefore the Legal and Regulatory Framework is emphasised in the context of the national ICT policy.

A.3 HUMAN CAPITAL

T

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, wherein the brain drain is a fact of life in all professions and fields that rely on, or are enabled by, ICT competence. Hard choices must be made between either rapidly importing needed skills, or slowly nurturing them within our own society – even at the risk of a subsequent “loss” into the Tanzanian diaspora. Other choices are needed on the priorities in the composition of competencies that are most urgently needed and on realigning the educational and vocational training pipelines to provide appropriate exit-points that satisfy the current needs of our labour markets.

In addition, we can not afford to ignore the new opportunities for applying ICT to enhance education (including curriculum development, delivery and marking of national exams, teaching methodologies, simulation laboratories, opportunities for self-improvement, life-long learning, distance learning, etc., for teaching not only about ICT, but for all subjects and specialisations. If embraced appropriately and supported at all levels, these could transform the country's human capital.

With the increasing need for professional versatility arising from convergence, our traditional education and training institutions are otherwise going to be hard pressed to meet the growing demand for multi-skilled operatives, knowledge workers, and the so-called “hybrid managers”. Therefore, Human Capital is central to the national ICT policy.

A.4 PUBLIC SERVICE

S

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. Most notably, the Public Service Reform Programme includes a Management Information Systems Component that aims to lay the foundations for what is now known as eGovernment, while sectoral reforms recognise and promote the use of ICT in their respective sectors.

It is undeniable that ongoing efforts to create a robust nation-wide communications network for the Public Service will have a significant positive impact on all sectors, not only improving delivery of services but also as an engine of growth for the country's ICT industry. This will be

the case particularly if the Government becomes a model user of ICT in the means by which it manages its ICT resources and organises its internal ICT services.

In addition, the Government collects and holds vast amounts of locally relevant information that may be converted onto electronic media for better preservation and cheaper accessibility for the public. Such information includes legislation, regulations, procedures, forms, maps, research papers, statistics, etc., 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 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, especially in the context the potential contribution of e-Government to underpin and create new opportunities for the ongoing public service reforms.

A.5 ICT INFRASTRUCTURE

in view of the numerous forms of technological convergence that are occurring, the very meaning of ICT infrastructure is evolving, embracing the availability of equipment, supplies and services of computers, telecommunications, multimedia, broadcasting, and content. Hence, the modern telephone wire is expected to transmit not only voice communications, but also data connectivity, internet access for networks, and a whole range of multimedia broadband services, which raises many issues regarding equipment standards for interconnectivity.

This now means that quality and quantity of network connections points must be evaluated together. It is insufficient to count people per phone line now, without an indicator of the line's capability, especially in countries like Tanzania where it is so common to have shared access to infrastructure. Additionally, the relevance of ICT infrastructure in developing countries must be associated with the availability of other essentials 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 leap-frogging into best deployment strategies for the particular time and location, allowing sustainability and responsive service standards — clearly, such choices must necessarily be made in close collaboration with the ICT industry's players and with the target end-user communities. Thus, the policy must also support the formation of multi-sectoral partnerships to facilitate the development of innovative infrastructure projects. Therefore, ICT Infrastructure is being specifically emphasized in the National ICT Policy.

A.6 ICT INDUSTRY

It is obvious that the development of ICT in this country can not occur without facilitating the development of private enterprises engaged in supplying ICT equipment, content, training and other related services. The convergence phenomenon is expanding the range of businesses that can be counted as being part of the ICT industry, while technological progress is also creating

many entirely new forms of business. Therefore, any definition of this sector must remain flexible enough to accommodate new candidates.

In this country at present, most ICT firms focus on serving urban centres whereas 80% of the population is in sparsely populated rural areas. Enticing the firms to broaden their target markets will need the Government's support to make it economically viable for them to invest in serving small and dispersed markets where the types of service delivery may be radically different from what they are giving their current customers. At the same time, we need to move from being mere consumers of technology towards contributing towards the processes of design and manufacture of technology, again requiring Government support for investment in an area which hitherto was not economically viable.

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 artisanal enterprises are an essential component of a vibrant ICT sector. At the same time, the education system needs to be oriented to emphasise entrepreneurial and professional skills, recognising that only a very small minority of school-leavers actually proceed to higher education. In addition to creating opportunities for acquiring technical competence in ICT, hybrid technical and commercial skills are very necessary in the sector.

The key groups in the ICT industry will also need to gain a common voice with which to talk to the Government and articulate their needs and concerns. Because ICT is an enabler for the products and services originating from other sectors and industries, there is need for the ICT industry's relationship with Government to be transformed from being focused mostly on taxes and tenders towards being more of a partnership for national development. Among shared objectives are reducing ICT ownership costs, enhancing the sustainability of ICT projects, broadening the demand for ICT products, increasing the availability of skilled and experienced human resources, accelerating importation procedures, etc. Therefore the national ICT policy specifically encourages the development of ICT Industry in Tanzania.

A.7 PRODUCTIVE SECTORS

T

anzania's GDP is heavily dependent on agricultural production, while the mining and industry 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.

A.8 SERVICE SECTORS

I

It is undeniable that utilities and services in Tanzania may be significantly improved and expanded by applying ICT to the service delivery processes in the most productive manner.

A.9 UNIVERSAL ACCESS

T

he 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 inclusion 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 to the communities that are currently the most disenfranchised. These target groups are the ones that stand to benefit the most from the new digital opportunities, as they will be making the biggest quantum jump in terms of gaining access to knowledge.

Universal access means more than simply making available connectivity and equipment, as it also involves cultural adaptations and ensuring that any services provided are responding directly to the priorities and most immediate needs of the target groups. Therefore, this is an area where the involvement of civil society and community-based organisations is likely to be crucial. Additionally, special incentives, financing mechanisms and support channels will need to be established to encourage private enterprise to invest in providing universal access facilities.

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 other technical experts. For these reasons, the national ICT policy is placing specific emphasis on universal access.

A.10 Local content

[Placeholder]

REFERENCE MATERIALS

URT: “Development vision 2025 for Tanzania” (Seventh draft – Nov. 26, 1997).

“A Count ICT Survey for Tanzania – Final Report” – Meller Esselaar and Associates – November, 2001 Prepared for SIDA.

URT: Poverty Reduction Strategy Paper (PRSP).”

Mavis Ampoh Sintim: *African Connection–Communications for the African Renaissance*. MISA.

Ministry of Energy and Mineral Final Draft: “The National Energy Policy.” 2001.

Tanzania e-secretariat: “Proposal for Tanzania’s ICT Policy Formulation Framework.”- Final Version December 2001.

Paper: “Digital Divide: Status of Current Research.”

Paper: “Tanzania National Information and Communication Infrastructure (NICI) Process.”

Ministry of Communications and Transport: “National Transport Policy.” Final Draft, July 2001.

Ministry of Communications and Transport: “Challenges in Information Environment Particular to Public Services Using Information Computer Technology (ICT)” TRAINING and Applications –, Paper June 2001.

CTO/DFID Programme “Building Digital Opportunities,” INTERNET POLICY WORKSHOP, Dare es Salaam 26 – 30 November, 2001.

“Draft IT POLICY OF BANGLADESH” EB 2000 Expatriate Bangladesh 2000.

The Ethiopian Science and Technology Commission, “National ICT Policy and Strategies (00 Draft)” December 1999).

Economic Commission for AFRICA: “Business Government Forum on Electronic Commerce: Maximizing the Digital Opportunities” Durban, 15 – 17 January 2001 –.

EAC Secretariat: “The Second EAC Development Strategy 2001 – 2005” April 2001.

OECD: “Information Technology Outlook: ICTs, E-commerce and Information Economic Highlights.” 2000.

IDEA – Democracy Forum 2001 “Democracy and the Information Revolution: Values, Opportunities and Threats.” Stockholm 27 – 29 June 2001.

Office of the Prime Minister: “National Information and Communications Infrastructure Framework Study Task force: Executive Summary and Conclusion.” – Addis Ababa, January 1999.

“Telecoms in Africa: TAM TAM TO INTERNET.” – Editor: *Terrefe Ras*- Work 1998.

United Republic of Tanzania: “Agricultural Sector Development Strategy. Revised Final Draft” 20 June 2001.

UN ECA: Information and Communication Technologies for Improved Governance in Africa.” — Sept. 1999.

The White House: “A Framework for Global Electronic Commerce.” July 1997.

“Selected Examples of E-enterprises in Least Developed Nations.”

Wizara ya Maliasili na Utalii – “SERA YA TAIFA NA MISITU” – DAR MACHI 1998 URT.

Errol Hewitt: “A Strategy for Establishment of the IT Industry in Developing Countries. The Jamaican Experience.”

Commonwealth Secretarial: “A Commonwealth Action Programme for Digital Divide.” August 2001.

UNECA/INFODEV Project: “Internet Economic Toolkit for African Policy Makers – An African Internet Forum.” 1999.

Infocom Review Vol. 5 No. 4 1999.

ITU: Challenges to the Network Internet Development.” Geneva 1999.

30. “The National Telecommunications Policy.”