eSecretariat

Proposal for Tanzania's ICT Policy Formulation Framework – Final Version

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This policy formulation framework is a living document that was developed by the eSecretariat under the guidance of the Interim Steering Committee for ICT in Tanzania, and delivered to Tanzania's ICT Task Force that is under the Ministry of Communications and Transport. Please feel free to pass any comments to the following members of the eThink Tank. Simbo Ntiro on +255.744.780665, Simbo.Ntiro@eThinkTankTz.org or David Sawe on +255.744.782175, David.Sawe@eThinkTankTz.org

1 Instructions

1.1 Objective

For reasons set out in the Introduction to this document, the Government of Tanzania ("Government") has decided to request the services of an experienced consulting firm ("Consultant") to produce the following outputs with respect to Information Communication Technologies ("ICT") for Tanzania's development:

- A draft time-bound National ICT Policy ("Policy") and proposed institutional arrangements. Other outputs will include plans for implementation, and for monitoring and evaluation. All outputs will be agreed at a technical level, and will be suitable for formal submission to Government for consideration. This will also inform the Government's position on implementing eGovernment
- Draft changes to existing legislation and new enabling legislation to enable the policy and other arrangements to be implemented.

These outputs will be developed under the guidance and oversight of the Interim Steering Committee for ICT in Tanzania ("ISC") for consideration by Government.

1.2 Main duties

The consultant's main duties will be as follows:

1. Develop a time-bound proposed National ICT Policy in accordance with Section 3 of this document using a consultative formulation process.
2. Develop proposals for the relevant institutional arrangements in accordance with Section 4 of this document.
3. Develop proposals for the legislative and regulatory framework that will enable the implementation of the National ICT Policy in accordance with Section 4 of this document. This will include drafting of proposed new Acts.
4. Throughout the process of formulation, employ a consultative approach with a minimum of two opportunities for stakeholders in civil society to provide input and feedback into all outputs that are under development.
5. Investigate successes and failures in implementing national ICT policies in developing countries similar to Tanzania, and apply these lessons learnt to the formulation process.

1.3 Timeline

The main duties as outlined above should be completed within 3 months of commencing these main duties.

1.4 Reporting and oversight

All results of the assignment will be presented to the ISC with progress meetings from time to time. All reports are to be made as transparently as possible. The ISC is the "owner" of all deliverables produced by the formulation process, and remains responsible for guidance and oversight of the consultant and the process.

2 Process guidelines

2.1 A consultative formulation process

As part of Tanzania's overall reform process it is necessary for stakeholders to engage together in addressing the challenges posed by globalisation and the new economy, while actively seeking the opportunities that are increasingly available in deploying ICTs for development. In summary:

> Government intends to establish an environment within which new technology can spread throughout its operations, to its citizenry, and in enabling cooperation among all components of civil society. There will be particular focus on the private sector, non-profit organisations, and local communities.
>
> Conversely the private sector should be encouraged in reinforcing its role of building a sustainable environment for its own prosperity, as well as that of others. In doing so, the private sector will need to explore the specific ways of achieving this within the context of Tanzania's national development goals while ensuring best practice is consistently maintained. While ICT necessarily cuts across all sectors, it is also a business sector in its own right. This sector, too, needs to be developed.
>
> Government has committed itself to fully embracing good governance practices. In other words government seeks to be improve its relationship with, and responsibility to, civil society. Therefore civil society must be involved in consultations on this formulation process. This is additional to the need to improve governance further by deploying appropriate eGovernance solutions.
>
> Finally international development partners and government will have to work together to integrate the use of ICTs into their operations in ways that promote sustainable development.

It is for these reasons that it is imperative that the formulation of Policy in this regard is consultative. We also note that this consultative approach is in conformity with the government rulebook on policy development. Since the Policy is intended to be a guideline to all stakeholders in line with national developmental, macroeconomic, legal, and regulatory regimes, it is therefore imperative that the formulation process takes the following into account at a minimum:

> Existing national developmental goals;
>
> Existing policies that are relevant to ICT for development;
>
> Existing legal and regulatory framework;
>
> The views of stakeholders including of "civil society"; and
>
> The need to review and update the policy regularly and relevantly.

2.2 Directly relevant entities

While there is a need for a strong and consultative process with a wide universe of stakeholders, it is especially important to directly engage particular entities in the formulation of proposals. Below, in alphabetical order, is a list of directly relevant entities to be engaged during the consultative process:

> Bank of Tanzania;

Commission of Science and Technology;
Communications Operators of Tanzania
Dar es Salaam Institute of Technology;
Donor community – particularly through the coordination of the UN System;
eThink Tank;
Government of Tanzania, notably:
- Civil Service Department
- Ministry of Communications and Transport
- Ministry of Education and Culture
- Ministry of Finance
- Ministry of Industries and Trade
- Ministry of Justice and Constitutional Affairs
- Ministry of Science, Technology and Higher Education
- Planning and Privatisation Office (formerly the Planning Commission)
- President's Office
- Vice President's Office

Parastatal Sector Reform Commission;
Sokoine University of Agriculture;
Tanzania Broadcasting Commission;
Tanzania Bureau of Standards;
Tanzania Communications Commission;
Tanzania National Business Council;
The Association of ISPs in Tanzania;
University of Dar es Salaam.

2.3 Key links

Since Tanzania will not implement its Policy in isolation, it is imperative that certain key links are recognised. Furthermore it is important to recognise the dependencies and links between the Government's policy on ICT, and the National Policy for ICT for Tanzania's Development. Additionally it is clear that implementation will have impact sub regionally and regionally, within specific country groupings, and will in turn be impacted by global initiatives. Some examples of key links are set out below:

Sub-regional:

- The East African Community
- Other neighbouring countries

Regional:

- African Connection
- African Partnership Initiative – funded by DFID
- African Telecommunications Union
- Economic Commission for Africa
- African Union
- Southern African Development Community

Global:

- G8 Digital Opportunity Task Force (DOT Force)
- Global Knowledge Partnership
- Institute for International Communications and Development
- International Telecommunications Union

Technical Cooperation among Developing Countries
UN ICT Task Force.

Additionally it will be particularly important to utilise the Policy to shape, guide, and coordinate any initiatives that are supported by bilateral, or multilateral official development assistance ("ODA") programmes. For example those developed by the DOT Force, or under the African Partnership Initiative.

2.4 Significant infrastructure and project initiatives

It will be necessary to take a baseline inventory of significant infrastructure and project initiatives. Some of these significant current initiatives might include:

Significant e-Government initiatives such as the implementation of an HR & Payroll system, the implementation of an Integrated Financial Management System (IFMS), and the Tax Identification Number (TIN).

Infrastructure initiatives such as TRP IV, and the rollout plan of the newly privatised TTCL. Equally rollout plans of mobile cellular operators are relevant.

Ongoing partnerships such as the networks among Tanzania's tertiary academic institutions.

The Regional Cisco Networking Academy hosted at the University and supported by US AID, UNDP among others.

The inventory will be useful in formulating policy proposals, for example reducing fragmentation, or setting targets for universal access etc.

2.5 Surveys

Additionally it should be noted that the eReadiness Survey being carried out by the Commission of Science and Technology funded by info*Dev* is close to being finalised. Additionally the Embassy of Sweden commissioned an ICT Survey of Tanzania that is also in the process of being finalised. It is imperative that the outcomes of both these surveys are taken into account in formulating ICT policy. This is because there is no substantive baseline data or statistics on ICTs in Tanzania.

3 Introduction

3.1 Background of the eThink Tank

A group of Tanzanians from various walks of life had been concerned for some time at the lack of coordination on ICTs as they impact Tanzania and its development. A number of key drivers prompted this group to create an informal association called the eThink Tank. The Information Document developed by eThink Tank members clearly sets out the vision, mission, and goals of the eThink Tank, and the steps it needed to take as at 22 June 2000.

The founding members decided to host and facilitate the eThink Tank, inviting potential partners in the public and private sectors to engage in dialogue. The first meeting was held on 8th February 2000 in Dar es Salaam. Since then scheduled meetings have been held on Thursday evenings at a number of locations. Currently the eThink Tank has over 120 members, mostly senior executives and managers from a wide range of public and private organisations, who have voluntarily chosen to take ownership of the eThink Tank initiative. The mission of the eThink Tank is summarised below.

> ***Offer ICT leadership by catalysing policy changes and by supporting related developments aimed at enabling Tanzanians to participate effectively in the modern Internet-based global economy, benefiting their Nation and partners.***

The Tanzania eThink Tank intends to fulfil its vision via the following phased goals:

> ***Phase I***: To catalyse urgently the creation of a formal national ICT organisation ("NICTO") with mandate from the Government of Tanzania as a public – private partnership. This Forum can become the ICT focal point for Tanzania by remaining in the public domain while bringing together diverse stakeholders to contribute to ICT policy development at national and international levels.
>
> ***Phase II***: To educate, support, and advise the NICTO in all its ICT activities at the national and international level for the benefit of Tanzanians, while assisting in the formation of working groups focused on ICT development.

Once created, the NICTO would be educated, supported, and advised by the eThink Tank, and is intended to have the following main characteristics.

- Engage political leadership within the Government to give a mandate to the NICTO to deal with ICT at the national and international levels, and to drive relevant policy changes.
- Represent a partnership of all key ICT stakeholders amongst the public sector, NGO sector, and private sector in the country.
- Be the national focal point for all matters involving ICTs in Tanzania, and act as a link with ICT focal points elsewhere.
- Safeguard Tanzania's unique characteristics including its sovereignty, diversities, unity, culture, and social values in the globally networked world.
- Maintain a view of global and regional strategic perspectives to assure cross-border alignment of significant ICT initiatives and interdependencies.

3.2 Progress made towards achieving the eThink Tank's mission

Since the eThink Tank published its Information Document, it has made the following progress in achieving its Phase I goals.

- The mission and goals of the eThink Tank have greatly interested Tanzania's Civil Service Department ("CSD") and the United Nations Development Programme ("UNDP"). The eThink Tank is now being seen as a valid ICT initiative for Tanzania's development that has emerged rapidly on a voluntary basis as a public – private partnership.
- The eThink Tank is, in its own right, rapidly becoming an influential focal point for ICT-related issues in Tanzania. For example all of Tanzania's appointed delegates to the G8's Digital Opportunity Task Force were also, coincidentally, members of eThink Tank.
- The UNDP has responded to a request from the Permanent Secretary of the CSD for assistance in facilitating a joint consultancy to establish a National ICT Organisation.
- The UNDP has responded favourably to this request for assistance and has made a budgetary allowance in support of the Public Service Reform Programme (PSRP) MIS Component in supporting this joint consultancy.
- An ISC has been agreed, with members nominated by the eThink Tank, UNDP, and CSD, under the chairmanship of CSD supported by an eSecretariat. It is intended that membership will be extended to include the Planning and Privatisation Office, and the Ministry of Communications and Transport.
- Involvement in conferences, workshops and exhibitions as a result of partnerships forged with various entities including IICD and AITEC.

The ISC through the eSecretariat, is developing terms of reference for a project to formulate a national ICT Policy in a consultative manner, and to develop the related legal framework or amendments to existing legislation. This is the subject of this document.

3.3 The development context

Since one of the bases behind developing a coherent Policy is the deployment of ICT for development, it is appropriate to link this policy formulation process to Tanzania's own and agreed development vision.

The Development Vision 2025 was formulated by seeking the views and consensus of a wide cross-section of our society during the formulation process. The draft Development Vision was discussed by various societal groups including Honourable Members of Parliament, all political parties, leaders of various religious denominations, women and youth organisations, chambers of commerce and industry, farmers, professional associations, renowned personalities in our nation's history, and ordinary Tanzanians. Therefore the New National Development Vision will guide economic and social development efforts up to the year 2025. In recognising this important Development Vision it is useful to set out the targets of Vision 2025 as follows:

- High Quality Livelihood;
- Good Governance and the Rule of Law; and
- A Strong and Competitive Economy.

It is also noteworthy that Vision 2025 explicitly includes ICTs, and notes *"The new opportunities that ICTs are opening up can be harnessed to meet the goals of the Vision."* Therefore the proposed Policy shall be a reflection of national goals, objectives and aspirations, and will provide a framework for prioritised actions to achieve them.

3.4 Related existing policies

As set out earlier, there are no previous national ICT policies, therefore one can treat the formulation, to a certain extent, as a "green field". However there does exist a relevant National Telecommunications Policy ("NTP") for the period 1997 through 2020. The NTP aims at ensuring the accelerated development of an efficient telecommunications network that can provide an info-communication infrastructure and universal access to telecommunications services by all sectors of the national economy and segments of the population. (Para 1.0) And it also recognises that in an effort to create efficient, effective, and competitive services, the Government will facilitate the formation of a stakeholders' forum that will serve as a channel for open discussion on improving the country's telecommunication services. (Para 3.7)

However it should be noted that this policy is specifically focused on telecommunications concerns, and needs to be supplemented by an ICT Policy. For example the focus on teledensity, which refers to handsets, does not address ICT concerns such as bandwidth, data, and multimedia that is measured by mainlines per capita. (Para 2.2.2)

Additionally, the Prime Minister's Office recently completed drafting a National Information Policy. The draft policy was presented in June 2001 at a seminar for stakeholders in the information and media industry for further inputs before being set into place for implementation.

Finally the Ministry for Science and Technology issued the National Science and Technology Policy for Tanzania in April 1996. This policy recognises the vital role that science and technology plays in socio-economic development and states *"It is therefore imperative for developing countries like Tanzania to embrace science and technology as a vital tool for accelerating their social economic development."* It further acknowledges that science and technology is not a means in itself, but a means to an end. The policy recognises both the need for a national policy as well as sectoral policies developed by line ministries, including establishing institutional arrangements and legal frameworks to assist in policy implementation. Again it is noteworthy that while technology is a focus area, this policy does not specifically address ICTs.

3.5 Guidelines for ICT for development in Tanzania

Tanzania's people and institutions should benefit financially, economically, socially, and culturally by participating fully in the globally networked community. Therefore the guidelines for the future that the eThink Tank partners have agreed upon are as follows:

- *Countrywide telephone lines and computer connections and ICT sales and support services need to become increasingly accessible, reliable, and much cheaper.*
- *The Tanzanian public becomes educated in the use of Information and Communications Technologies (ICTs) and is made aware of the benefits available by accessing, sharing, and processing knowledge via modern technologies.*

- *The role of ICT in day-to-day becomes more locally relevant and appropriate to Tanzania's environment and her leading socio-economic requirements, cultural priorities, and value systems.*
- *Tanzanians increasingly influence technological innovations, and the development of new ICT products and markets that are relevant to their circumstances*
- *In the process of work creation in Tanzania, the separation between ICT deployment, knowledge management, and workforce productivity in the process of wealth creation becomes rapidly diminished.*
- *Tanzania's ICT policy and regulatory environment becomes harmonised to dovetail with that of neighbouring states and partner countries.*
- *Tanzania's ICT policies and regulations encourage initiatives that offer long-term paybacks, community-based spin-offs, and assurance of sustainability, as well as financial benefits.*
- *Tanzanians increasingly develop and propagate content on the Internet that is relevant and interesting to Tanzanians, addresses local issues, and reflects Tanzania's cultural diversity. This content is both multimedia, and in local languages, and the market reaches a "critical mass" thus making the local development of Internet content commercially viable.*
- *Tanzania becomes involved in the Governance of the Internet.*
- *Tanzania benefits from the convergence between telecommunications and multimedia services with reduced cost of bandwidth.*

ICTs have revolutionised the way businesses operate, resulting in what is being called the *"New Internet Economy"*. This has brought about entirely new market relationships and productivity levels whereby it is no longer possible to separate the effective use of ICT from the process of creation of wealth. Neither is it possible to isolate the technology of production from the end user any more, nor to delineate one type of technology from any other. All of these phenomena reflect technological "convergence". Most importantly ICTs and convergence offer Tanzania an opportunity to leapfrog stages of development if this opportunity is taken as a national priority.

3.6 Key obstacles observed in Tanzania's ICT environment

The key observations that drove the formation of the eThink Tank are:

a) ***Public educational institutions in Tanzania lack computers**, let alone access to the Internet. Because we are not preparing our younger generations to participate fully in the new Internet-based global society, we are compromising their future, and that of the nation at large.*

b) ***Tanzania has been lacking leadership in, and has no focal point for ICT**, and as a result the country is missing opportunities and remaining fully exposed to vulnerabilities induced by rapid globalisation and emergent technologies.*

c) ***Inappropriate policies, regulations and laws** prevent Tanzanian institutions from benefiting fully from developments in ICT. There is over-regulation of Communications, yet there is under-regulation in Information Technology. Equally, incentives for investing in ICT in Tanzania are inadequate, whereby ICT initiatives here are aimed at maximising quick direct profits instead of enhancing sustainability and spin-offs.*

d) *There are many valuable ICT projects in Tanzania, but these are neither harmonised with, nor aligned to, each other resulting in **duplication of efforts, loss of economies of scale, inappropriately deployed expertise**, and other immeasurable inefficiencies.*

e) ***Tanzania's ICT policies and regulations are not harmonised*** *with her neighbours – for example countries in the East African Community and the Southern African Development Community – resulting in cross-border inefficiencies.*

f) ***Tanzania's basic ICT infrastructure is poor*** *in many areas as witnessed by the low penetration of telephones and the long waiting time for connection in most areas. This limits opportunities for poverty alleviation in disadvantaged areas, thus contributing to rural–urban migration.*

g) ***Many commercial ICT initiatives are not viable in Tanzania*** *at present for reasons that include out of date institutional frameworks, poor transport infrastructure, ineffective national payments system, inadequate postal services, lack of street names for home delivery, absence of credit infrastructure, etc. Therefore the private sector is unable to implement initiatives – notably. e-procurement services – that could benefit everyone.*

h) ***The 20-year prohibition on importing computers to Tanzania – 1974 to 1993 – has impacted workers' ICT skills adversely****. As a consequence, short-term needs drive ICT skill development rather than long-term strategy. Therefore people in Tanzania with appropriate ICT skill mix are all too often expatriate workers. If there is no comprehensive long-term plan to change this we will continue to lose the experience that these workers gain from working amongst us.*

i) ***Tanzania does not participate in developing and propagating Internet content that is directly relevant and of benefit to its citizens*** *in their local languages. This reduced interest in the Networked World means the demand for the Internet is too low to attract investment for commercially viable Internet businesses. The reasons for this might include too few people with the appropriate mix of skills, and the lack of an encouragement to build the skills mix needed.*

j) ***Tanzania's education system needs to embrace the Knowledge World*** *focusing on the progression from "data collection" through "information processing" to "knowledge management".*

k) ***The Government of Tanzania is losing out on opportunities to provide information and other services to the public by deploying ICT productively*** *and in accordance with best practice.*

l) ***Tanzania does not have a policy, legal, and regulatory environment that stimulates investing in ICTs for development****. Clearly this raises obstacles to the opportunities for Tanzania benefiting from ICT, obstructs her citizenry from fostering regional co-operation to harmonise regulation, increase competition, and rationalise usage of scarce bandwidth to the better good.*

m) ***Government in addressing the need to utilise ICT for development does not sufficiently disseminate information on what is possible, drawing on best practices****. Additionally there is a need to create a better enabling environment including for rural telecommunications,*

4 Government as an "intelligent" user of ICT

The Government is easily the largest single business in Tanzania, and is the most significant player in its own right in many sectors of our economy. Therefore Government leadership as an "intelligent" ICT user is necessarily the most important potential catalyst in deploying ICT for development countrywide.

4.1 The potential effects of eGoverment

Government leadership in deploying ICTs, and the constructive use of government purchasing power (economies of scale), are central not only to developing the ICT sector, but also to awareness of, and attitudes to, technology.

Additionally and equally importantly, implementing e-government appropriately has the potential, at a minimum, of:

a) Improving dissemination of relevant information to Tanzanian citizens, and all others who need to engage with this Government;

b) Radically enhancing the internal processes, and service delivery, of Government;

c) Improving the efficiency and transparency of procuring goods and services; and

d) Enabling consistent and easy access to Government services.

The nature of Government activities will lead it to be prepared to pay for connectivity in areas that would not otherwise be commercially viable to serve. For example the existence of a border post will require it to have basic services such as electricity and connectivity, thus benefiting the otherwise marginalized local communities. Therefore e-Government deployed countrywide provides an opportunity for bcal communities to piggyback on the ICT opportunities in previously un-reachable points, significantly improving national points of presence and access.

4.2 Intelligent user of ICT

Therefore, Government as an "intelligent user" of ICT is central to the success of implementing a National ICT Policy. This is a viable part of any wider strategy to encourage and facilitate ICT take-up and innovation nationally.

Quite apart from the potential catalytic effect of Government being an intelligent user of ICT, it is also useful to note what e-Government is and what its potential effects are in its own right. In other words while Government may or may not use ICT intelligently; it can also deploy e-Government applications in itself. The e-Government applications will be stronger and more cost effective within the context of a framework whereby "intelligent user" requirements are being addressed.

e-Government refers to the use of ICTs (such as Wide Area Networks, the Internet, and mobile computing) by government agencies. Such uses might include innovative applications that take advantage of newly emerging technologies. One example is to radically improve the accuracy, timeliness, content of a national census, while at the same time drastically reducing the cost of conducting the census by deploying hand-held pocket computing devices. Adoption of e-Government alters the fundamental relationship between the government on one hand and the public (citizens and businesses) on the other, in three main ways.

1 By reinventing the business of government – through new ways of integrating information and making it accessible over the Web.

2 By being an essential ingredient for effectively deploying e-Commerce since Tanzania's Government is the biggest single buyer and employer in the country. Therefore applications that engage in procurement, and delivering services are key.

3 By also transforming the nature of governance by affecting the relationship and responsibility between the state and its citizens, most notably affecting transparency and accountability.

E-government is not a solution for failed development, bloated bureaucracies, red tape, and non-democratic governance. In fact, it increases the urgency of tackling the same micro and macro barriers and their associated outcomes such as poor educational systems, high costs of telecommunications, unreliable transportation networks, low investments for small and medium enterprises, and lack of availability of large scale capitalist entrepreneurs. E-government imposes new challenges and requirements relating for instance to intellectual property rights, privacy, security, data networks, and competition between Internet Service Providers (ISPs). These new challenges and requirements are also imperative for e-Commerce to emerge successfully.

E-government has two primary effects. First, it transforms the ***operation of government.*** The provision of a government's goods and services is made quicker, cheaper, and more consistent. Such gains are due to the reorganization of internal administration and processes and the integration of government databases. This approach benefits citizens as customers and not supplicants, hence their needs are more likely to be met. It also benefits businesses, which become both consumers of government services and providers of goods and services to the government. It also benefits the government itself through reduced transition costs and spending, which could require lower taxes to finance. Typically electronic transactions cost less than 10% of over-the-counter equivalents. Additionally electronic transactions are available 24 hours a day, every day. Therefore this effect is the most attainable in the short-term.

The second effect of e-government is the ***transformation of governance*** – the introduction of new relationship between citizens and the State in managing a country's affairs. This has three components.

The first is gathering information as a basis for policy development, and the public dissemination of the results of policy deliberations.

The second involves using ICT to facilitate participation and debate in order to formulate policies and set strategic directions and priorities.

The third component – and the most advanced – involves electing political representatives using ICT.

These three components that comprise the second effect, however, require significant political will and a genuine commitment to use ICT for improved governance. Their benefits will include citizens being able to be better informed about the people and policies for which they are voting. Additionally they will be better able to track the performance of their elected representatives.

It is worthwhile noting that this second effect is generally termed **e-Governance**, but in many ways a perhaps more appropriate term is **e-Democracy**.

5 Making ICT a priority

5.1 Convergence

An information-based economy is underpinned by information, electronic media and telecommunication technologies that support the exchange of information in a network of users. This network comprises of a variety of terminal devices, including telephones, receiving devices and computers, connected to an information infrastructure, incorporating broadcasting and telecommunications, of which the Internet is an increasingly more important component. The Internet has come to be the lowest cost and most effective means for promoting the flow of multimedia information in the form of voice, text, images, or sound, for reasons that will be explained further below.

It is notable that Information and Communications Technologies (ICT) and their associated networks, including the Internet, are understood as performing together the various functions of information creation, processing, transport, preservation and delivery, in a growing diversity of ways. Thus, ICT as a concept incorporates the information in itself, known as content (i.e. sound, images, text and data), as well as the technologies used for broadcasting and telecommunication. Information Technology (IT) supports the different stages creation, processing, storage and delivery of content. When properly connected to a broadcasting and telecommunications infrastructure, all of this can operate in a wider, even global, network. Taken together then:

"IT" helps content to be developed, packaged and stored;

"Broadcasting" delivers the content to a targeted community;

"Telecommunication" serves to transport content between communities; while

"Internet" is an agreed set of standards (known as protocols) whereby all those three systems can work together cheaply and reliably.

Although driven by converging technologies and common business interests, these four basic components have conventionally been kept separate at the policy and regulatory levels across the world. In particular, the telecommunications sector segregated conventional telecommunications networks from those based on the newer Internet-Protocol (IP), because of differences in routing/switching technology. However, to fulfil the basic needs of a modern information-based economy, these four components must now become elements of a single, integrated network that seamlessly interconnects the entire country and links it efficiently to the rest of the world.

5.2 An information-based economy

Unfolding an information-based economy will therefore require the participation, contribution and partnership of a broad range of stakeholders including Government departments, regulatory authorities, broadcasters, telecom operators, private network operators, service providers, content providers, software developers, vendors, education providers and end-users. In this context, many cross-sectoral issues will also need to be addressed, notably to rapidly equip a whole generation of knowledge-workers with new skills that empower them to be productive in the changing ICT infrastructure. Clearly, this is not a challenge for the public sector alone, because it is evident that the private and non-profit sectors will also have a significant stake and can also make very distinct contributions to progress. And, at the same time, there are regional and global

implications that need to be considered, because national infrastructures can no longer afford to grow in isolation from the surrounding world, especially when for a country that has as many neighbours as Tanzania.

5.3 National ICT policy

For these reasons, we recognised that there is need for our national ICT policy to be seen as a wholesale innovation, requiring new institutional, statutory, regulatory and legal provisions. This level of reform suggests the need to build an entirely new policy approach to secure the fastest and most appropriate outcomes for the welfare of all potential end-users and service-beneficiaries in all of our country's economic sectors and social conditions. Moreover, the experience of pioneering countries reveals that best successes have been attained from bold and innovative policy measures rather than from attempts to reconcile the new technological progress with conventional policy frameworks. This was the basis for the eThinkTank to approach UNDP's Resident Mission here in Dar es Salaam in September 2000, to enquire on the possibility of accessing their global knowledge base in order to propose a policy direction for developing national ICT leadership in Tanzania, for tabling to the Government of Tanzania. Therefore, on 21st February 2001, in partnership with the Government's Public Service Reform Programme, an Interim Steering Committee was created and supported by the e-Secretariat to draft a framework that provides policy proposals relevant to Tanzania. That framework document is hereby introduced.

6 Policy Framework

6.1 Why is policy important?

There has been considerable research in examining the causes of the "digital divide" and indeed attempts to link development to deploying ICTs appropriately. Additionally there have been some rather severe conclusions that argue that Internet access may mean little to "poor Africans" since lack of education will prevent effective use of new technologies. However much of this research has relied on anecdotal evidence.

A recent paper issued by the Development Research Group of the World Bank arrived at some interesting conclusions following a detailed econometric analysis of the digital divide between a number of high- and low-income countries. Perhaps most surprising was that there was no gap between Internet intensity (Internet subscriptions per telephone mainline) between developing and developed countries. However the results do suggest that policy differences matter a great deal. The main conclusions of the paper are:

The digital divide is not really new, but actually reflects a long-standing gap in per-capita availability of mainline telecommunications services;

Since mobile telephones are a promising new platform for Internet access, mobile telephone diffusion was examined for a number of past years. While income differential matter, the critical role of progressive policies on accelerating diffusion emerges strongly;

Policy simulations also reveal that feasible and appropriate policy reforms could sharply narrow the digital divide over the next decade for many countries in Africa, including in Tanzania; and

Access promotion would yield substantial benefits for poor households, and that cost-effective intervention strategies are available.

Therefore the challenge to Tanzania is to devise ICT policy reforms that are:

Technology independent;

Progressive while promoting cost-effective intervention;

Are "inclusive"

Foster a competitive environment; and

Take into account the all-important component of human capital development.

This policy framework reflects these challenges.

6.2 Focus areas

The sections below set out national development goals from the Vision 2025, and related focus areas for ICT for development initiatives or actions. In formulating policy it will be necessary to set out for each focus area:

A clear description of the focus area;

Measurable targets and time-bound to be achieved;

Actions that the Government should take in this regard; and

Actions that any implementing agency should take in this regard.

6.3 Crosscutting issues

It is important to further note that there are several crosscutting issues that impact deploying ICT for development. These crosscutting issues are implicit in each focus area below, and any in actions that are needed to achieve focus area targets. An initial list is:

Gender equality noting the need to focus on including women and school-going girls at all levels of ICT applications, not merely at the operational level.

Those whose abilities are impaired taking into account persons of all ages.

Noting the importance of inclusion of the youth, and those ageing.

Noting the need to be non-discriminatory in terms of race, tribe, and religion, while preserving the unique cultural diversities of Tanzania.

Noting the importance of addressing the HIV/AIDS and other infectious and communicable diseases that are attacking the most productive segments of our population.

Acknowledging the necessity to have a national outlook, thereby being inclusive of the special needs and considerations of all areas of the entire territory of the United Republic of Tanzania, and our Diaspora.

Recognising the imperative of supporting entrepreneurship in order to realise its potential in urban job creation, and being a significant driver of economic growth.

Taking full account of the labour movement and the occupational and privacy rights and needs of the workforce.

Therefore the sections below are suggestions for a clear description of each focus area that supports relevant national development goals. In addition each section includes initial suggestions of measurable time-bound targets and the actions that are needed to meet those targets.

It is imperative that these targets are updated in order that they continue to be relevant to changes in technology options (by ensuring independence of technology), to progress made in implementing policy, to Tanzania's own socio-economic environment, and to our own improving knowledge. Appropriate and timely update is a guiding principle in formulating policy, and is a fundamental function of the Policy monitoring and evaluation framework that should also be put into place at the outset.

The measurable and time-bound targets are summarised under the national development goals in the table below.

High quality livelihood – Vice President's Office	**Good governance and the rule of law – President's Office**	**A strong and competitive economy – Ministry of Communications & Transport**
Invest in public ICT infrastructure Universal access and service Connection to Internet backbone National Internet Exchange Point ***Establish and Support Dedicated Initiatives for complete ICT Inclusion regionally*** Deploy a Regional Internet Backbone ***Enhance human capacity development, knowledge creation and sharing*** Establish Networking Academies Connect secondary schools to the Internet Connect higher learning institutions and research centres to the Internet ***Promote ICT for health care and in support against HIV/AIDS and other infectious and communicable diseases*** Deploy ICTs in combating HIV/AIDS and other infectious and communicable diseases Connect all regional hospitals to the Internet	***Establish national e-strategies*** Establish a national ICT organisation E-Capacity building for senior policy makers Implement prioritised eGovernment applications Implement prioritised eGovernance Improve regulatory capacity Conduct a national e-Readiness assessment ***Establish and participate in addressing new international policy and technical issues raised by the Internet and ICT*** Participate in international organisations and fora on the Internet ***Prioritise ICT in development assistance policies and programmes, and enhance coordination of multilateral initiatives*** Coordinate all major ICT-related initiatives through a national ICT organisation / forum	***Improve connectivity, increase access, and lower costs*** Monitor quality of service of Internet Service Providers Establish a flat data rate for national Internet access Establish an e-rate for Internet access for educational institutions ***Foster enterprise and entrepreneurship for sustainable economic development*** Establish an appropriate environment for e-Commerce ***Support local content and applications creation*** Introduce dedicated training for Knowledge Management Inventory local websites Track local traffic access and content

7 Institutional arrangements

In developing proposals for the institutional arrangements, it is important to take into account the following:

Institutional home: As with any initiative that has national impact it is imperative to find an appropriate institutional home for the implementing agency. It is proposed that a NICTO be created as the primary implementing agency with a broad mandate to promote ICT for Tanzania's development, and to implement the National ICT Policy.

Concept: In order to perform the functions listed below, it would be necessary to have a *"headquarters"* and an *"implementation and operations centre"* augmented by special and focused *"task forces"* called into being from time-to-time. These might comprise a single or several institutions.

Create and update ICT Policies from time-to-time;

Create and update legal and regulatory frameworks from time-to-time;

Foster a competitive environment, particularly in the private sector;

Mechanisms to feedback implementation issues to policy formulation;

Implement ICT Policy in accordance with the legal and regulatory framework;

Be the focal point for, and coordinate, ICT-related activities;

Arbitrate issues; and

Address complaints from the public.

Public-private Partnership: In order to continue the success of the eThink Tank model it will be necessary for the institutional arrangements recommended to be a partnership between Government, the Private Sector (and wider Civil Society), and the Donor Community.

Budget and long-term commercial sustainability: It is necessary to create a budget for the period of time equivalent to the time-bound National ICT Policy. Additionally there should be proposals that include a formula whereby contributions for fixed costs and services provided (by the institution[s]) are initially augmented by donor funds that are phased out with time until operations become commercially sustainable in the long-term. Needless to say special one-time tasks might well be funded to a large degree by donated funds.

Formation options: There are several options to actually form the institution(s) required, including a) Presidential decree; b) Act of Parliament; and c) Company Formation (including not-for-profit organisations). The choice of options to recommend will depend on a number of variables including the mandate of the organisation, the location of institutional home, degree of independence, etc.

8 Legal and regulatory considerations

8.1 Enabling legal framework

There should be a clear legal framework that gives rise to an environment that allows the Policy to be implemented effectively. This legal framework should also at a minimum include recommendations for the following:

Changes to existing acts that impact ICT for Tanzania's Development. For example the Communications Act 1993/18 gave rise to the Tanzania Communications Commission. It will be necessary to review this Act as well as others that have been enacted that might impact ICT.

Proposals for areas that do not exist, thus develop proposals for a legal framework that will enable implementing the ICT Policy effectively.

Therefore in summary laws that would need to be prepared / updated include:

1 A copyright law that makes provision for the protection of intellectual property and related matter. This Act includes computer programs as an innovation that needs to be protected from piracy and other illegal usage.

2 An IT law that makes provision to take account of developments in the field of IT including data protection, privacy and computer misuse

3 A telecommunication law and a broadcasting law to promote and ensure fair competition amongst operators licensed to provide telecommunication and broadcasting services, respectively.

4 An electronic commerce law to facilitate electronic transactions through the recognition and regulation of electronic records and electronic signatures for authentification purposes.

5 Various laws that apply to the financial services sector since Tanzania's legal framework is entirely geared towards paper-based commercial transactions.

Additionally, for ICT applications to be able to mature into attaining their full potential uses while deploying the interactive transaction types required by e-Government, e-Commerce, e-Education and Tele-medicine (to mention just a few areas), Tanzania needs to urgently promulgate legislation and associated instruments that cover the areas of:

Data Access Rights;

Protection of Privacy;

Computer Frauds & Crimes;

Institutionalising a national focal point for ICT; and

Public Key Infrastructure, including hardware, software, products, processes, standards, people. This is designed to establish trust & confidence in electronic transactions by, most importantly, assuring all electronic-message recipients of:

- Confidentiality - No third-party can access the message
- Identity - Actual sender's identity is known and can't be falsified
- Integrity - No possibility to tamper a message en route or on receipt
- Non-repudiation - The sender can't deny having initiated the message.

The main focus of having such legal instruments is to address the following key areas of concern:

Confidence in security & privacy of e-transactions;

Enhancements to information infrastructure carrying e-commerce;

Established rules governing e-transactions; and

Delivery of e-opportunities to the entire population.

8.2 Regulation while facing rapidly changing technologies and a transitioning environment

Recent developments have resulted in "convergence" meaning digital technology now allows both traditional and new communication services - whether voice, data, sound or pictures, to be provided over many different networks previously not associated with such services. As a result it is no longer appropriate to focus on regulation with the previously telecommunications-sector-specificity. Convergence and competition must be taken into account for reasons that are expounded further below.

8.2.1 *Telecommunications reform and sectoral transition*

Some of the major global telecommunications sector reforms are set out below. Tanzania is in the process of addressing these reform goals with varying degrees of success:

Privatisation of PTTs;

Licensing of competitive operators;

Introduction of transparent regulatory processes;

Mandatory interconnection and unbundling of PSTN;

Price cap regulation;

Targeting universal access funds; and

Removal of barriers to international trade in telecommunications.

Tanzania is in a transition to a market-based economy. Further it is in the process of privatising its PTT having unbundled since 1993 progressively unbundled the single company (Tanzania Posts and Telecommunications Corporation) into the following:

Tanzania Communications Commission - The Regulator and implementer of telecommunications policy

Tanzania Telecommunications Company Limited, the effectively incumbent operator that was recently privatised and has a monopoly on basic and international telephony services expiring in February 2004;

Tanzania Posts Corporation; and

Tanzania Postal Bank.

Additionally liberalisation of the market has resulted in a number of improvements including licensing for a variety of services (including for VSAT, radio communication, mobile telephony, basic telephony, international gateways, services, internet service provision, public data services, and so forth) all under the oversight of the Regulator.

However the regulatory regime has caused a number of concerns to those in civil society citing the following areas for improvement among others:

Lack of "true" competition among providers of similar services, such as mobile telephone with little to distinguish between the main suppliers in terms of cost, quality of service, responsiveness to customer complaints and so forth

Extremely high cost of international calls

High cost of access to geographically restricted Internet points of presence

Convergence issues being outside the scope of services regulated by the Regulator, particularly with respect to Internet-related services such as VoIP or Internet eXchange Points (IXPs) etc

8.2.2 *Fostering competition through regulation*

There is considerable interest in competition, since competitive suppliers might offer lower prices, more or better qualities of service, and packages to attract customers. This serves the "public good" by inducing suppliers to become more competitive, and to offer a greater choice of products and services at lower prices. In terms of telecommunications policy, Tanzania lies some way between what is termed "imperfect competition" and "monopoly", whereas in terms of ICT Policy there is simply a gap that must be filled as soon as is possible.

If the market were perfectly competitive there would be no reason for Government to intervene in the market. In the case of competition law and policy the main objectives behind intervention are to respond to market failures, to limit abuses of market power, and to improve economic efficiency. Additional reasons for intervention might include achieving objectives that are not immediately commercial such as achieving universal access, and then finally universal service, or indeed to attract foreign direct investment or to create jobs.

Some countries have a general competition authority and a sector-specific telecommunications regulator. Others have merged the two. Some of the reasons behind maintaining telecommunications sector-specific regulation might include:

The need for sector-specific technical expertise to deal with some key issues in the transition from monopoly to competition. For example network interconnection, access to surplus backbone capacity, unbundling of the local loop and so forth;

The need for advance rules to clearly define an environment conducive to the emergence of competition; not just retroactively apply remedies to punish behaviour, or to restructure the industry. An example of the former is to let all players in Tanzania's telecommunications sector be able to plan, NOW, for the post-exclusivity of basic telephony services and international gateway, rather than reacting after the fact, thereby having a de facto extension of exclusivity

The need to apply policies, other than competition-related policies that are seen as important to governments, such as relate to universal access / service, or national security and control

The need for ongoing supervision and decisions on issues such as interconnection, quality of service, establishing and enforcing licence conditions particularly for dominant operators, and not at the expense of other operators

The need to take into account the impact of "convergence" on what used to be telecommunications specific. For example while there appears to be no rationale to have an ICT specific regulator in Tanzania, it appears logical to increase the capacity of the incumbent regulator to have roles and responsibilities on the multi-sectoral ICT, for example in monitoring ISP quality of service, pricing, encouraging IXPs, addressing the growing public demand for VoIP etc.

8.2.3 *Advantages of Incumbent Operators*

The nature of telecommunications networks provides strong advantages to well-established network operators such as TTCL. Sometimes these advantages might require anti-competitive measures that are relatively unique to telecommunications, and must be even-handed in order that operators can compete in a "level playing field". Some typical advantages benefiting incumbent operators might include:

Control over essential facilities such as public right-of-way, support structure such as poles or conduits, the local loop, telephone numbers and frequency spectrum. Control over such facilities can give an incumbent numerous advantages over new entrants particularly in the absence of strong pro-competitive regulation by discriminatory pricing to other operators and shielding its own customers by cross-subsidisation. For example low cost of local calls that are competitive, versus high cost of international calls where the incumbent has time-bound exclusivity

Economies of established national networks in terms of scale, density and scope that cannot be matched by new entrants for many years

Vertical economies whereby an incumbent might operate local access networks, national long-distance networks, and international networks. In such cases it is cheaper to coordinate local, long distance, and international telecommunications within a single firm, resulting in vertical integrated products

Control over network standards and development since all other operators must adapt their networks to the incumbent. In this case the incumbent has undue advantages because of its "head start"

Cross-subsidies whereby competitive services such as mobile telephony or Internet access services are priced below cost, and effectively subsidised by monopoly services such as international services. This might extend across companies owned by a "holding" incumbent where there is insufficient structural or accounting separation between subsidiaries giving those subsidiaries of the incumbent unfair advantage over other operators

Custom**er inertia** whereby new entrants may find it difficult to persuade customers to switch from an incumbent that has served them for many years. This is particularly true for lower-volume users (e.g. residential customers, or where marketing costs of change can be high (e.g. company main / pilot or fax lines)

8.2.4 *The way forward*

For these reasons and for the public good, it is necessary to consider converging issues and competition in any review of the regulatory environment in Tanzania in these changing times, and the capacity of the Regulator to address those changing times. At a very minimum a review of the regulatory environment and of the capacity of the Regulator must be accompanied by:

Defining the relevant markets;

Analysing the products available in the relevant market; and

Defining the geographic market.

Other key factors are:

Barriers to market entry;

Market power and dominance; and

Establishing the essential facilities.

Once the analysis is complete it will be possible to craft a broad range of remedies for anti-competitive conduct to be implemented by the Regulator, itself having had is own capacity enhanced appropriately.

9 Detailed policy framework – Addendum

This addendum underpins the policy framework goals set out in Section 4 of this document. The detailed actions here are to be implemented by various ministries / / departments / agencies (MDAs) of Government, with clear roles set out for other entities in the private and non-profit sectors for the benefit of, and in consultation with, civil society

9.1 High quality livelihood

9.1.1 *Invest in public ICT infrastructure*

Focuses on the need to invest in capital-intensive ICT internal infrastructure that is connected to regional – international ICT infrastructure. Ensuring infrastructure investments are appropriate to the new economy. For example the focus on mainlines versus telephone lines is a paradigm shift to accommodate multimedia connectivity. Focus areas might include improving points of presence (POPs), mainline penetration, broadband capability, planned connection to the Internet (perhaps via Africa One or SAT 3 fibre optic cable projects), East Africa sub-regional backbone with multimedia capability, elimination of non-digital telecommunications infrastructure, upgrade of wireless local loop (WLL) technology etc. Universal access is a short-term goal, while universal service is a long-term goal: recognises the need to be innovative in acquiring capital to achieve these important short- and long-term goals.

9.1.1.1 *Universal access and service*

Target: Achieve mainline multimedia universal access by 2004, and universal service by 2025.

Government actions: By end of 2001, develop in conjunction with key stakeholders (incumbent and other operators and ISPs, relevant line ministries, and the regulator) a framework to achieve universal access and service as above. Framework is to include a universal service fund, the institutional arrangements necessary, and legislative changes required. Ideally this will be managed by an independent Universal Service Agency. Innovation is required in terms of addressing mainlines, broadband availability, Multipurpose Community Telecentres (MCTs), call centres and boxes and disadvantaged areas.

Implementing agencies: Agencies include incumbent and other operators, ISPs, and the regulator. Incorporate in rollout plans, billing and settlement arrangements, and interconnection agreements. Note that the incumbent operator must ensure WLL technology deployed in meeting rollout targets is multimedia capable, not voice only. The Regulator is to plan for the implications of the post-exclusivity period granted to the incumbent operator and disseminate those plans transparently.

Expected main benefits: Reduction of the digital divide from the perspective of access. Further, access drives development thereby improving poverty alleviation efforts.

9.1.1.2 *Connection to Internet backbone*

Target: Ensure Tanzania has a connection to the Internet by 2002.

Government actions: Review existing potential projects such as Africa One or SAT 3, and establish what needs to be done to ensure inclusion and connection.

Implementing agencies: Regulator to establish what regulatory changes need to be introduced in order to facilitate smooth connection to the Internet backbone, working with other regulators and line ministries as appropriate.

Expected main benefits: Reduce significantly the cost of connection to the Internet. Significant improvement in quality and speed of service.

9.1.1.3 *National Internet Exchange Point*

Target: Establish a national and independent Internet Exchange Point (IXP) by the end of 2001

Government actions: IXP implementation plan should result in a self-sustaining IXP that services all ISPs and public data providers with appropriate interconnection arrangements with the incumbent operator.

Implementing agencies: While the IXP will be independent, it will be under the oversight of the Regulator who will also monitor interconnection, settlements, service levels, etc.

Role of private sector: Utilise the IXP as a fee-paying service, but benefiting from reduced bandwidth costs and passing savings on to end-users.

Expected main benefits: Reduce significantly the cost of local traffic, thus saving scarce foreign exchange. Improving quality and speed of service for local traffic, thus spurring growth and local utilisation of the Internet.

9.1.2 ***Establish and Support Dedicated Initiatives for complete ICT Inclusion nationally and regionally***

Emphasises the need to initiate efforts to initiate significant improvements in basic information infrastructure regionally. There is need to facilitate Internet exchange points and country peering regionally in reducing connectivity costs. Recognise our unique regional ICT dilemmas including the lack of regional backbones, peering, and inadequate regional Internet bandwidth and connection points, working with other countries to support relevant initiatives.

9.1.2.1 *Deploy a Regional Internet backbone*

Target: Deploy an East African regional Internet backbone by 2004.

Government actions: Demonstrate to our neighbours through the East African Cooperation infrastructure the value of a regional Internet backbone, taking into account the current telecommunications infrastructure improvement plans and set up an East African inter-ministerial working group to achieve the target by 2004.

Implementing agencies: Regulator to establish what regulatory changes need to be introduced in order to facilitate smooth connection to a regional Internet backbone, working with other regulators, inter-ministerial working groups and line ministries as appropriate.

Expected main benefits: Reduce significantly the cost of regional traffic, thus saving scarce foreign exchange. Improving quality and speed of service for regional traffic spurring growth and utilisation. Enhancing regional business opportunities by enlarging the market potential. Fostering regional cross-border competition.

9.1.3 *Enhance human capacity development, knowledge creation and sharing*

Focuses on digital literacy for children, especially girls, using distance learning facilities and public access points for underserved areas and the disenfranchised and illiterate (particularly youth and women). Interconnection and Internet access among schools, research centres, and higher learning institutions is recognised to be critical. Support for centres of excellence at all educational levels using tools such as twinning. Focus areas might range from for research on training and local content development through to enhancing use of locally relevant applications. Enhancing e-awareness among senior policy makers, emphasising the role of eGovernance in enhancing democracy, transparency, and government accountability.

9.1.3.1 *Establish Networking Academies*

Target: Establish three Networking Academies supported by the regional Networking Academy at the University of Dar es Salaam by the end of 2002.

Implementing agencies: Identify three institutions among universities and technical colleges that have the qualifications to become Cisco Networking Academies. Set into place a support agreement with the Regional Cisco Networking Academy, and procure equipment etc and train staff as appropriate. National ICT Organisation to implement and monitor until at least 2004.

Expected main benefits: Begin to build a workforce with the appropriate technical skills to design, build, and maintain ICTs. Improve the reliability and availability of our ICTs while reducing our reliance on foreign expert technicians.

9.1.3.2 *Connect secondary schools to the Internet*

Target: Connect to the Internet all public and private secondary schools that meet basic criteria by 2005.

Government actions: Identify all public and private secondary schools that meet the following criteria: a) have a regular electricity supply; b) have a telephone mainline; c) have an appropriate environment for computers including trainable teachers and appropriate rooms etc; and d) have a locally accessible Internet point-of-presence.

Implementing agencies: Implement the rollout in conjunction with the appropriate line ministries, incumbent operators, donors and ISPs.

Expected main benefits: Begin to ensure new technologies are seen as ubiquitous and not elitist tools while building a foundation for knowledge workers in our economy.

9.1.3.3 *Connect higher learning institutions and research centres to the Internet*

Target: Connect to the Internet all higher learning institutions and research centres ("institutions") that meet basic criteria by end of 2002.

Government actions: Identify all institutions that meet the following criteria: a) have a regular electricity supply; b) have a telephone mainline; c) have an appropriate environment for computers including trainable teachers / instructors and appropriate rooms etc; and d) have a locally accessible Internet point-of-presence.

Implementing agencies: Implement the rollout in conjunction with the appropriate line ministries, incumbent operator, donors and ISPs.

Expected main benefits: Build a foundation for knowledge working while improving the productivity of research activities at our learning institutions and research centres by giving access to best practice and the latest information and tools cheaply.

9.1.3.4 *Support the deployment of Multipurpose Community Telecentres countrywide*

Target: Deploy MCTs countrywide having an MCT in each region by end of 2002, and in each district by end of 2005.

Government actions: Coordinate MCT projects to ensure that the regional and district targets are met to plan. Identify and prioritise disadvantaged areas and encourage this prioritisation in implementing projects.

Implementing agencies: Implement the rollout in conjunction with government targets, and ensure appropriate and relevant applications are deployed for local communities to benefit.

Expected main benefits: Improve access to ICT applications that are relevant to local communities countrywide. Applications and content will be beneficial to local communities.

9.1.4 ***Promote ICT for health care and in support against HIV/AIDS and other infectious and communicable diseases***

Recognises valuable uses of ICT in health education, monitoring, statistics, and delivery of care, and in meeting internationally agreed health targets, particularly in the areas of HIV/AIDS and other infectious and communicable diseases. Hence there is need to expand ICT use in the campaign against HIV/AIDS (to be extended to other infectious and communicable diseases) via available forms of communication from community radio to broadcast media, telecommunications and the Internet. This could focus on severely affected areas, with content, applications and strategies shared and replicated more broadly. Creating a network for "ICT Against HIV/AIDS", partnering public, private, non-profit sectors and international organisations, to emphasise the logistical and management aspects of treatment and preventative measures, using ICT to disseminate information to the general public, professionals and policy makers.

9.1.4.1 *Deploy ICTs in combating HIV/AIDS and other infectious and communicable diseases*

Target: Develop a comprehensive plan to be deployed by end of 2001

Government actions: Develop a comprehensive plan that addresses the information and counselling needs and telemedicine applications that are relevant. It is imperative to note that information needs should be at various stages including a) informational; b) pre-infection; c) post-infection; and d) counselling for the infected and their supporting family members or friends. Note that to receive information one does not necessarily need to be connected to the Internet.

Implementing agencies: Work with outreach organisations in conjunction with government line ministries to develop concrete plans for consideration.

Expected main benefits: New technologies offer the most cost-effective means of disseminating constantly changing information countrywide.

9.1.4.2 *Connect all regional hospitals to the Internet*

Target: Connect to all regional hospitals that meet basic criteria to the Internet by end of 2002.

Government actions: Identify all institutions that meet the following criteria: a) have a regular electricity supply; b) have a telephone mainline; c) have an appropriate environment for computers including trainable staff and appropriate rooms etc; and d) have a locally accessible Internet point-of-presence. Identify the applications that are to be best deployed in regional hospitals.

Implementing agencies: Outreach organisations to work in conjunction with government line ministries to enrich plans for implementation.

Expected main benefits: Improve the information flow to / from regional hospitals cost-effectively. Deploy applications to improve the productivity of regional hospitals. Conduct high-level medical courses by deploying e-learning and connectivity to other medical institutions globally.

9.2 Good governance and the rule of law

9.2.1 *Establish national e-strategies*

Recognises the significance of "eStrategies" and the need for high-level political commitment and national ownership, with international benchmarks. Includes creating political e-readiness as a prerequisite to e-readiness. Includes recognising the importance of regulatory, policy and strategy, involving public, private and non-profit sectors.

9.2.1.1 *Establish a national ICT organisation*

Target: Establish a national ICT organisation by the end of 2001.

Government actions: Establish a national ICT organisation in a consultative manner working with all key stakeholders that is mandated with developing ICT policy and standards, and is the focal point for ICT-related matters for the nation.

Implementing agencies: Relevant government agencies and donors to work with the private sector and civil society while noting the importance of having appropriate institutional arrangements which are responsive to the rapidly changing nature of ICT. While significant support is expected in the short-term, the medium-term organisation should be sustainable and be supported by consumers of the services it provides.

Expected main benefits: An entity dedicated to ICT for development of Tanzania that will be mandated with Policy formulation and update, and monitoring and evaluation. Alignment of major ICT initiatives is a major outcome expected, as is the benefit of having a national focal point for ICT.

9.2.1.2 *E-Capacity building for senior policy makers*

Target: Strengthen and widen the knowledge of Tanzanian policy makers on the ICT issues in general. Special emphasises should be given to the issue of ensuring, that the whole scope of possibilities ICT for development can offer, are exploited.

Government actions: To acknowledge the need of capacity building in ICT policy makers. To organize national workshop for parliamentarians on the ICT for development. After that workshop proceed with other capacity building activities concentrating in line ministries and their highest personnel.

Implementing agencies: Line ministries, National ICT organisation with support of donor community and ICT business sector

Expected main benefits: To increase awareness on and enhance capacity of ICT policy development process among the senior policy makers. Strengthen political leadership on ICT issues both nationally and internationally.

9.2.1.3 *Implement prioritised eGovernment applications*

Target: To foster productivity, transparency and democracy inside the Government ministries and Government agencies.

Government actions: After acknowledging the vast benefits of full scale information sharing and management, to conduct a comprehensive project implementation plan for implementing ICT application to all appropriate administrative, public service, information dissemination and educational activities of the Government

Implementing agencies: Line ministries under the supervision of CSD

Expected main benefits: In Tanzanian's economy the role of the Government is vital. Therefore it is needed to speedup ICT development and efficient application roll out. By applying ICT for higher productivity, The Government both enhances its services and fosters the demand of ICT services provided by private sector.

9.2.1.4 *Implement prioritised eGovernance*

Target: Government ministries and Government agencies

Government actions: To implement ICT applications in all administrative activities of Government

Implementing agencies:

Expected main benefits: To develop speedy, transparent, accountable, efficient and effective processes to perform Government administrative activities, to minimize Government expenditure, to fulfil the needs of citizens by simplifying their interaction with Government organs, to improve standards of living include health care and education

9.2.1.5 *Improve regulatory capacity*

Target: A stable, independent, objective, predictable, transparent and highly professional regulatory regime that is responsive to the rapidly changing nature of ICTs. This regulatory regime should be "technology independent".

Government actions: To establish an independent regulatory machinery with authority and ability to regulate rates and carrier behaviour and be able to resolve disputes between parties in a timely and efficient manner, during transition to greater competition. Enforce flexible laws and regulations so as to open market to competitors on a fair and equitable basis. Approach anti-competitive behaviour with appropriate remedies. Regulations on universal access, content and rate structures should be done with care so as not to stifle investments by imposing costly burdens. Adopt as appropriate, internationally agreed and harmonized Intellectual Property Rights. Adopt uniform practices for handling personal details by companies, organisations and Government authorities. Note that all ICT security-related policies must strike the correct balance among the needs of business, individuals, public safety and national security

Implementing agencies: Government, Parliament, professional boards and stake holders

Expected main benefits: Optimise the use of scarce national resources such as radio frequency spectrum; protect consumer rights, including privacy rights; create a climate favourable to promoting investments in ICT; coordinate and supervise resolution of disputes among stake holders; establish rules for interconnectivity; foster competitive markets to promote: efficient supply of ICT services, and good quality of service and efficient prices

9.2.1.6 *Conduct a national e-Readiness assessment*

Target: To conduct a baseline study on the current ICT situation in Tanzania. This assessment can then be used for both planning and resource mobilization purposes.

Government actions: Conduct a case study based and survey based assessment to establish the stand on the following:

- what is e-Commerce means to people in different walks of life;
- to what extent e-Commerce is taken as a crucial element in strategies;
- for which reasons do our people think we should adopt e-Commerce;
- how many are prepared to use e-Commerce
- do people have adequate skills
- are households confident about buying over the net
- are computers for browsing Internet only?
- speculative estimate of e-Commerce market
- skills that people may require before implementation
- suitable means to implement training to acquire the skills

Implementing agencies: Ministry of Communication and Transport in co-operation with National ICT organisation

Expected main benefits: A firm understanding what Tanzania's current situation is on ICT. A view that can be used as a cornerstone for the process of ICT policy updating and implementation. This study would also be an excellent tool for raising public awareness and commitment to deploying ICT for development. IT can also be used to build capacity further for senior level policy makers.

9.2.2 ***Establish and participate in addressing new international policy and technical issues raised by the Internet and ICT***

Notes on the need to support developing country stakeholders to better understand global Internet and other ICT technical and policy issues, and hence to participate more effectively in related global fora. Recognises further Tanzania's unique social and cultural issues, and these should be as appropriate presented to global fora.

9.2.2.1 *Participate in international and Regional ICT organisations*

Target: Target organisations should include ICANN, IETF, WWW consortium, ATM forum, FSAN, 3GPP, etc.

Government actions: To set strategies for Government and private sector to cooperate and participate effectively in regional and international fora to establish ICT standards for interoperability and interconnectivity (e.g. through NICTO);

To encourage public-private partnerships and cooperation in international matters to establish seamless global communication and information environment

Implementing agencies: Ministry of Communications and Transport in co-operation with NICTO

Expected main benefits: To educate Tanzania's national and international partners on the latest development on the ICT in the international fora. To participate on the international decision making process and to represent national, regional and peer groups internationally.

9.2.3 ***Prioritise ICT in development assistance policies and programmes, and enhance coordination of multilateral initiatives***

Asserts the need for ODA programmes to adopt "ICT for development" as a strategic, crosscutting theme in their own respective development efforts (such as health, education, job-creation). Recognises the value of enhancing donor co-ordination on ICT-related initiatives, especially within the context of national eStrategies.

9.2.3.1 *Coordinate all major ICT-related initiatives through a national organisation*

Target: To clarify the different responsibilities different actors on the ICT field play, it is need to have a coordinator for ICT initiatives. On the coordination, there are at least three different roles to play, namely the roles of the Government, private sector and Donor community coordination. Each one of these sectors is need an independent and strong actor, but alone they are less productive and segregationist, thus they need to cooperate on their coordination.

Government actions: To name and support the Government focal point for ICT, to acknowledge and accredit the private sector coordinator (NICTO) to open formal discussion forum with the ICT donor group.

Implementing agencies: The Cabinet with the help of the Government focal point for ICT

Expected main benefits: To achieve streamlined and well-coordinated national ICT projects which reflect the national development goals and targets. To result in the focusing of national resources.

9.3 A strong and competitive economy

9.3.1 *Improve connectivity, increase access, and lower costs*

Recognises that public and community ICT access points are key to providing affordable access to connectivity, especially where training and connectivity are major constraints. Such access points should be supported and networked to share experience, best practices, etc., and be extended to underserved areas. The use of multiple technologies for connectivity (as adapted for their environments), regional backbones and national Internet exchanges should be encouraged via collaboration among stakeholders.

9.3.1.1 *Monitor quality of service of Internet Service Providers*

Target: To foster competition of quality service between the ISPs, data communication service providers, PSTN and other service operators. To ensure that the benefits of continuously improving technology are down streamed to the general public in an appropriate and competitive manner. To maximize the industries self regulation in a quest to minimize factors that are hindering the economical growth.

Government actions: Through a regulatory board, monitor connectivity, reliability, accessibility, speed and other relevant issues

Implementing agencies: Regulatory regime, ICT service providers on self regulating manners

Expected main benefits: - increasing sector efficiency by introduction of better services;

- stimulation of innovation and introduction of new services;
- increasing market and consumer confidence;
- improving global communication;
- improving competition in ICT sector;
- increasing efficiency and effectiveness of universality policies and standards

9.3.1.2 *Establish a flat data rate for national Internet access*

Target: Promote truly national Internet access by providing same initial cost throughout the country. ISPs, data communication service providers, PSTN and other service providers are licensed to sell services only in the areas where they can provide their clients a flat rate access.

Government actions: To assess the regulator to monitor the rates and services offered by Internet service providers to the general public.

Implementing agencies: The Regulator.

Expected main benefits: The roll out of Internet connection to the rural areas would greatly benefit the commercial, educational, health and public sectors in their task

of including all Tanzanians to their services. A regulatory framework that is transparent and equal to all participants, enhances competition and better customers service.

9.3.1.3 *Establish an e- rate for Internet access for educational institutions*

Target: To promote ICT education, e learning and international connections including language training, it is necessary to subsidize the educational Internet connections by establishing a special "e-rate" for their Internet connections.

Government actions: To provide educational organisations with special grants or subsidies for their Internet connection fees. This support is done in co-operation with the line ministries and donor community.

Implementing agencies: The Regulator and the line ministries

Expected main benefits: The Internet connectivity opens new, lucrative opportunities for educators. Nevertheless it has to be acknowledged that there are also many other needs for the educational resources, therefore by subsidizing the connectivity we signal that the schools assessment on this matter is vital. The educational sector could be one of the biggest users of Internet connectivity in the rural areas, therefore it would also stimulate the ISP's Internet roll out to those otherwise unprofitable areas. multiplication of ICT use and knowledge

9.3.2 ***Foster enterprise and entrepreneurship for sustainable economic development***

Recognises the importance of entrepreneurship for sustainable development, if given proper conditions for local enterprise to generate growth and achieve development goals. Doing so generically will also foster the ICT sector as demand for its products and services will grow. Mentoring and business incubation can be enhanced. But regulatory and market environments are needed for entrepreneurship and investment to thrive, create local capacity to transform all sectors of their economies, and attract greater local and foreign investment. Partnerships are needed that focus on local enterprise, innovation and lifelong learning. Development finance institutions to be encouraged to participate more in joint private-public initiatives, and donor agencies to incorporate entrepreneurial support in their initiatives.

9.3.2.1 *Establish an appropriate environment for eCommerce*

Recognises the importance of preparing thoroughly for the introduction of eCommerce since without a suitable financial and legislative framework, it is simply not possible to implement eCommerce. Key building blocks include: processing facilities for local and international credit cards; local credit rating facility; electronic clearing house for electronic transactions; cyber laws; up to date anti-fraud legislation; digital signatures; etc are all prerequisites for eCommerce.

Target: To ensure that Tanzanian companies are in a level international playing field when it comes to ICT regulation and legislation. To follow international development on cyber laws, digital signatures and other similar type of development to reformulate national ICT policy process to reflect latest requirements.

Government actions: establish user friendly, easy to understand, fair and predictable taxation system so that both conventional and electronic commerce can develop

and grow. In addition, widen public awareness of the policies and provide exceptional framework for debating complex issues arising during implementation (e.g. taxes, tariffs, etc.)

Implementing agencies: Line ministries, National ICT organisation

Expected main benefits: improved economic development and global competitiveness, better utilisation of resources, rapid expansions of new and advanced services, attraction of new capital both national and foreign,

will contribute to the conservation of Global environment because it will facilitate less use of natural resources and will rationalize transportation;

will stimulate economic activity for both buyers and sellers from both the supply and demand side of a potentially vast and reinvigorated market

9.3.3 ***Support local content and applications creation***

Promote aggressively the growth of local application development capacity. Support is needed for local content development, localization, translation and/or adaptation to fulfil the needs of learners, scholars, professionals, and citizens for education, learning, training and application development, including provision of online access. Also support programmes for digitising and putting public content online, focusing on multilingual applications and local heritage. Encourages local stakeholder participation in setting technical standards for incorporating local languages in ICT applications. And encourages networking of bodies which acquire, adapt and distribute content on a non-commercial basis, and investigating business models for publishing to enhance accessibility to poor people of relevant content.

9.3.3.1 *Introduce dedicated training for Knowledge Management*

Target: Audience is comprised of private and public officials, institutions, Government decision makers and all ICT stake holders.

Government actions: support the design of a cost-effective, scalable information infrastructure that can be used in education

- collaborate with groups engaged in ICT business and development and establish how education systems need to reform to build skills and knowledge for the information age;
- create and support a forum to connect scientists, information technologists, policy makers, and practitioners to rethink education in the age of globalisation and information;
- mobilize public and private sector constituencies in new thinking, experimentation and exploration of technological innovations for education and sharing and exchange of ideas and experiences in education technology;
- consider how the private sector can move into the business of education to meet the demand for products and services that support education and training

- identify and keep inventory of potential knowledge in every organisation, public or private;
- identify sectors in need of specific knowledge;
- identify the goals of deploying a specific knowledge;
- encourage knowledge replication;
- implement knowledge diffusion and exchange;
- support and encourage knowledge commercialisation;
- build a knowledge culture and momentum;
- foster knowledge management networks;

Implementing agencies: Institutions of secondary, tertiary, and technical learning in both the public and private sector.

Expected main benefits: Improved ability to operate in the New Economy; effective use of manpower and resources; cheaper and effective development of skills, easy collection of statistics and planning

9.3.3.2 *Inventory local websites*

Target: ISPs, private, public and institutions owning websites

Government actions: through national ICT organisation (e.g. NICTO) encourage voluntary registration of websites;

Implementing agencies: Government, national ICT organisation (e.g. NICTO)

Expected main benefits: to have efficient information exchange locally, to increase the hit-rate to in popular search engines

9.3.3.3 *Track local traffic access and content*

Target: ISPs, private, public and institutions owning websites

Government actions: through national ICT organisation (e.g. NICTO) implement a method of traffic monitoring

Implementing agencies: Government, national ICT organisation (e.g. NICTO)

Expected main benefits: collection of precise traffic data in Internet access, getting appropriate statistics for ICT planning purposes

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