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FOREWORD

ACKNOWLEDGEMENTS

ABBREVIATIONS AND ACRONYMS

3G	3rd Generation technology
BAZ	Broadcasting Authority of Zimbabwe
CCTLD	Country Code Top Level Domain
DSTV	Digital Satellite Television
EDI	Electronic Data Exchange
G2C	Government to citizen
G2G	Government to Government
G2P	Government to private sector
GDP	Gross Domestic Product
GIS	Geographical Information System
IAP	Internet Access Provider
ICTs	Information and Communication Technology
Mbps	Megabits per second
NECF	National Economic Consultative Forum
OGDI	Open Government Data Initiative
OVC	Orphans and Vulnerable Children
PFMS	Public Finance Management System
PLWDs	People living with disabilities
POTRAZ	Postal and Telecommunication Regulatory Authority of Zimbabwe
PTC	Postal and Telecommunications Corporation
RCZ	Research Council of Zimbabwe
RIMDP	Regional Infrastructure Development Master Plan
RIs	Research Institutions

RISDP	Regional Indicative Strategic Development Plan
SADC	Southern Africa Development Community
SIRDC	Scientific and Industrial Research and Development Centre
SMEs	Small and Medium Enterprises
SSB	Salary Services Bureau
UNECA/ECA	United Nations Economic Commission for Africa
VoIP	Voice over Internet Protocol
VSAT	Very Small Aperture Terminal

EXECUTIVE SUMMARY

The development and application of Information Communication Technologies (ICTs) since Independence in 1980 to date, has seen unprecedented change due to the fast technological developments that have been registered in the sector. The realisation of this growth has come with the realisation of the indispensable nature of ICTs by the Government of Zimbabwe, which worked on the first National ICT Policy and finalised it in 2005.

This second policy is a culmination of the realisation that the fast moving technological development in the ICT sector requires that policies be reviewed at certain intervals so that the country does not lag behind in this information age. The Government, through the Ministry, with the financial assistance from the United Nations Economic Commission for Africa, embarked on an exercise to review the first ICT Policy. The process involved the conducting of nationwide consultative workshops with the assistance of a Consultant. Some local stakeholders led by the National Economic Consultative Forum participated in the exercise that commenced in July and ended in mid-September.

The policy looked at the Ministerial Vision as it cascaded from the National Vision and the Ministry's Mission (the purpose why the Ministry exists). Due to their importance, the Ministerial Vision and Mission were included in this Policy so that they lay clear the basis upon which this policy anchors and pave the roadmap to achieve the vision.

The policy starts by exploring the overall objectives of the policy framework. Among the major objectives of this policy is the need to —

(a) facilitate provision and maintenance of infrastructural facilities necessary for ICT development;
(b) embark on extensive capacity building and training programmes to provide adequate supply of qualified ICT personnel and knowledge workers in all sectors;

(c) establish institutional mechanisms and procedures for determining sectoral application priorities;
(d) promote, support and enhance the development and use of, and ensure equitable access to benefits offered by ICTs across all sectors of society; and
(e) to promote the research and development of local ICTs to compete with international products.

From policy objectives the policy examines the status of ICTs. This entailed looking at the developments since the inception of the first policy and the challenges that manifest themselves during the process. The consultative process has noted the tremendous developments that took place in the telecommunications sector and also the impediments to further growth. Inadequate communications infrastructure, inadequate ICT facilities, inadequate ICT skills, unsatisfactory institutional arrangements, and inadequate data management systems are observed, among other issues, as impediments to the ICT sector growth. These are issues where proposals to address them are proffered by this national policy if Zimbabwe is to remain in the bandwagon of the information age. An ICT Charter and ICT internal control framework should be established in order to promote a responsive and responsible ICT governance culture as well as providing effective monitoring and evaluation tools.

The next section looks at the current ICT infrastructure with a view to establishing what constitutes ICT infrastructure, to what extent the existing infrastructure is adequate to the needs of the public and how it is used and managed, among other variables. The policy clearly spells out the shortcomings in this sector and observes that infrastructure plays a key role in the development and use of ICTs. Due to its (infrastructure) importance in ICTs development, the policy recommends certain policy measures for government to implement. Among the recommendations is the need for government to create attractive investment policies to realise growth in ICTs.

Another section, probably the longest, explores the various e-services and applications that Zimbabwe need to develop, including e- government, e-education, e-health, among others. This policy framework regards e-education and e-government as major cornerstones for an ICTs development strategy. It follows that full development in these sectors is a prerequisite for further development in the other sectors. For each sector policy, positions have been recommended. The policy notes the relevance of social networks that have sprung in the recent past, and proffers recommendations for government.

The policy also looks at the issues of capacity building and content development, gender and other disadvantaged groups. The human resource, content development and financial and material resources issues are looked into and the observation is that these areas need to be addressed by Government with the conceited efforts of other players. Participation by people from all sectors of the economy is encouraged in the implementation of this policy framework.

Finally the policy looks at the status of the existing regulatory framework coupled with the institutional mechanisms. It notes that there is need to revamp political, institutional, economic and security frameworks to facilitate development and use of ICTs. Various roles are identified according to various institutions and it is hoped that if these roles are executed conscientiously Zimbabwe will achieve its vision of emerging a united, strong, democratic, prosperous and egalitarian nation with a **high quality of life for all** by the year 2020.

1. Background

This policy, the second Information Communication Technology (ICT) Policy, is a culmination of a review process that considered the first Zimbabwe National ICT Policy (hereinafter referred to as the 2005 National ICT Policy) through a consultative process that involved stakeholders from around all the provinces of the country. The consultative process involved provincial workshops where stakeholders examined the 2005 National ICT Policy and made certain propositions. Consultations were carried out in all the ten provinces of Zimbabwe. Apart from the provincial workshops information was relayed to other stakeholders through the Ministry Website and letters that were served to specific Organization's requesting them to input into the review process.

The coordination of the whole process was done by the Ministry through a joint taskforce with the National Economic Consultative Forum (NECF). A Consultant was engaged by the Ministry, with the assistance of the United Nations Economic Commission for Africa (UNECA), to work with it and the taskforce. The Consultant (service provider) was tasked with the facilitation of the nationwide workshops, the carrying out of a desk study on the Regional position on ICTs and the drafting of the current National ICT Policy.

In the consultations that ensued, the range of policy documents whose principles underpinned
The 2005 National ICT Policy and the policy framework process that was followed were all noted with approval. The principles that underpin the second ICT policy derive from the Ministry's vision and mission, which are included herein.

(a) Vision

To transform Zimbabwe into a knowledge-based society by the year 2020

(b) Mission

To transform Zimbabwe into a knowledge-based society so as to enhance the country's competitiveness in the world in order to stimulate and sustain economic growth through the systematic application and innovative use of Information and Communication Technology.

The following are some source documents whose principles further provide credence to this national policy:

(a) Vision 2020

According to Vision 2020, "*Zimbabwe should emerge a united, strong, democratic, prosperous and egalitarian nation with a high quality of life for all by the year 2020*".One of the key elements that underpin the achievement of Vision 2020 is a national commitment to the exploitation of science and technology, especially ICTs, in support of sustainable national development.

(b) National Industrial Development Policy 2012 - 2016

The Industrial Development Policy seeks to promote ICTs for economic growth and industrialization as the world is now ICT based. It recognises the many advantages that come with ICTs to business operations through reduced transaction costs; increased productivity and efficiency; new trade opportunities locally and globally; access to knowledge; increased communication; and better communication. It further recognises that the Government of Zimbabwe is geared to see business embrace ICTs and e-technology to produce higher value chain products through the National ICT Policy Framework and the Strategic Plan spearheaded by the Ministry of ICT.

(c) Science & Technology Policy (2012)

The new Science and Technology Policy for Zimbabwe was adopted in 2012. The policy seeks to promote national scientific and technological self-reliance, and provides a comprehensive framework for the country to develop and harness S&T for development. The policy also provides for better co-ordination and direction in research and development (R&D) activities in all sectors of the economy. More specifically, the policy recognises the ICT sector as a key enabler of national development and accordingly directs that Zimbabwe develops a framework to guide its development and use.

(d) Zimbabwe Medium Term Plan 2011 – 2015

In terms of this development plan the emergence and convergence of ICTs is identified to be at the Centre of global socio-economic transformations. Thus ICTs are further identified as a catalyst for national socio-economic growth thereby propelling Zimbabwe into a knowledge society with ubiquitous connectivity by 2015.

(e) Millennium Development Goals (MDGs) (2005)

Zimbabwe has to a significant extent succeeded in implementing the Millennium
Development Goals adopted by Heads of State and Government at the fifty-fifth session of the United Nations General Assembly in September 2000. The Zimbabwe Millennium Development Goals (MDGs) Report 2005 launched by His Excellency President R G Mugabe in September, 2005 recognises the role of ICTs as tools that add value and contribute significantly to the achievement of the MDGs by 2015.

(f) World Summit on the Information Society (2005)

The second phase of the World Summit on the Information Society (WSIS) held in Tunisia in 2005 reiterated Governments, unequivocal support for the Geneva Declaration of Principles and Plan of Action adopted at the first phase of the World Summit on the Information Society in Geneva in December 2003.

(g) The National Economic Recovery Programme (NERP) (2004-2006)

The National Economic Recovery Programme (NERP) was launched in 2003 to address severe socio-economic challenges occasioned by droughts and compounded by a hostile external environment. The “Ten Point Plan” enunciated by His Excellency, the President of Zimbabwe Comrade R.G. Mugabe at his inauguration in 2002, set the tone for a focused multi-sector driven economic turnaround strategy on the back of measures to enhance national capacity to generate foreign currency and sustainable economic growth.

The NERP emphasises the need for Zimbabwe to exploit the potential of S&T in general and ICTs in particular in order to leap-frog national economic competitiveness and in the process increase export market penetration.

(h) Industrialisation Policy (2004)

The Industrialisation Policy of 2004 recognised and advocated for the development and use of ICTs in the manufacturing sector in general and to undergird the national export strategy in particular. ICTs are identified as indispensable in effectively marketing industrial products both on the domestic and export markets.

(i) WSIS Declaration of Principles and Plan of Action (2003)

The first World Summit on the Information Society (WSIS) Declaration of Principles and Plan of Action agreed to in Geneva in 2003 by Heads of State and Government strongly recommends the adoption and utilisation of ICTs to meet the agreed developmental goals. It is recognised that education, knowledge, information and communication are at the core of human endeavour, progress and well-being. Governments are invited to, among others things, provide enabling environments for the development and utilisation of ICTs.

(j) The Nziramasanga Education Commission Report (1999)

The Nziramasanga Education Commission Report of 1999 recommended the introduction and mainstreaming of computer-based teaching and learning in the pedagogy of our schools, colleges, universities and other institutions of higher learning. This constitutes a key element of the national ICT policy.

The various sources which are referred to here are an indication of the indispensable nature of ICTs in economic development.

2. Introduction

Since the inception of the first ICT Policy, developments in the ICTs sector have leap-frogged. A number of things that were not yet in place then are now the order of the day. People can now send money to relatives and friends in remote areas using mobile applications. However there is no legislation that designates the rights and obligations of the parties involved in these transactions. The 2005 National ICT Policy observed the status of ICTs and made certain policy statements with a view to achieving its objectives. The consultations revealed that whilst some of the objectives were achieved most are still to be met.

In view of this, the Ministry in conjunction with the NECF found it fit to carry a review of the 2005 National ICT Policy with a view to updating the document through addressing the new issues arising in the ICT sector and some that have remained unchanged.

The consultative process that was used focused on the 2005 National ICT Policy in light of the the SADC Regional Infrastructure Development Master Plan (RIDMP), to which Zimbabwe subscribes. While the results of the consultations coupled with the desk research indicated some measure of development in the ICT sector in Zimbabwe since inception of the initial policy, indications are that more effort need to be focused on issues of infrastructure development and

management, research, innovation and industry development, policy streamlining, regulatory framework and the institutional mechanisms, as well as capacity building and content development. Through consultation it is observed that the extent, to which e-services and applications are effectively used, is dependent upon the level of achievement of the aforementioned developmental issues. As a result, this policy puts emphasis on –

- infrastructure development and management;
- research, innovation and industry development;
- policy streamlining, regulatory framework and institutional mechanisms; and
- capacity building and content development.

The policy is therefore structured in the following manner. There is an analysis of the current status of the ICT sector in general. This is followed by an examination of the key ICT infrastructure; looking at its adequacy and what needs to be done. From there the policy expounds on various e-services that Zimbabwe needs to develop on. The ensuing two sections of the policy explore the issues of research, innovation and industry development, and capacity building and content development. Finally a section is dedicated to assessing the ideal measures to adopt in policy streamlining, regulatory framework and institutional mechanisms, an important foundation for the achievement of a vibrant ICTs development strategy.

3. Policy Objectives

The purpose of this policy is to provide strategic direction and guidance for sustainable national development through the development and application of ICTs in Zimbabwe. It therefore follows that in order to provide the said strategic direction and guidance the following objectives must be achieved:

(f) facilitate the provision and maintenance of infrastructural facilities necessary for ICT development, such as reliable supply of energy, communications and transport;
(g) put in place mechanisms to ensure that existing infrastructure is effectively utilised through, among other modalities, sharing;
(h) systematically promote and support the relevant and sustainable development of ICTs;
(i) embark on extensive capacity building and training programmes to provide adequate supply of qualified ICT personnel and knowledge workers in all sectors;
(j) advocate for the establishment of ICT structures for effective implementation of ICT strategies;
(k) promote local content development in indigenous languages;
(l) establish institutional mechanisms and procedures for determining sectoral application priorities;
(m) promote, support and enhance the development and use of, and ensure equitable access to benefits offered by ICTs across gender, youths, children, people living with disability and the elderly;
(n) capacitate the ministry responsible for ICT to enable it to assist in the formulation of sector specific ICT policies;
(o) promote the research and development of local ICT products regionally and internationally; and

(p) develop a legal framework that addresses issues related to data protection and cyber security.

4. Status of ICTs in Zimbabwe

The degree to which all sectors can integrate ICT in their operations is determined by the capacity of the ICT sector to provide the required services in a cost effective and sustainable manner. A vibrant ICT sector provides adequate and efficient telecommunication, postal, broadcasting and Internet services in all corners of the country. The ICT sector in Zimbabwe is punctuated by a number of institutions that provide these services and a number of developments have contributed to the growth of ICTs to the extent to which it is at. Key developments that have taken place in the ICTs Sector include --

(a) deregulation of the telecommunications sector ;
(b) establishment of regulatory bodies in the ICT sector i.e. Postal and Telecommunications Authority of Zimbabwe (POTRAZ); Zimbabwe Media Commission (ZMC) and the Broadcasting Authority of Zimbabwe (BAZ).
(c) establishment of the Cabinet Committee on Scientific Research, Technology Development and Applications ;
(d) computerisation of government ministries in the main centres of the country;
(e) creation of the ministry responsible for ICT;
(f) shortage of supply of electricity affecting smooth utilisation of ICTs;
(g) increase in the Internet penetration rate;
(h) enactment of the Criminal Law Amendment (Protection of Power, Communications and Water Infrastructure) Act, No. 1 of 2011 to deal with the problem of vandalisation of existing power, communications and water infrastructure; and
(i) the removal of duty on ICT hardware and software.

While these initiatives show some effort in the development of the ICT sector (and there are actually some positive impact flowing from some of these, e.g. deregulation of the telecommunications sector) more effort still needs to be put in seeking to ensure a vibrant and viable ICT sector in Zimbabwe.

4. 1. Developments pursuant to deregulation of telecommunications sector;

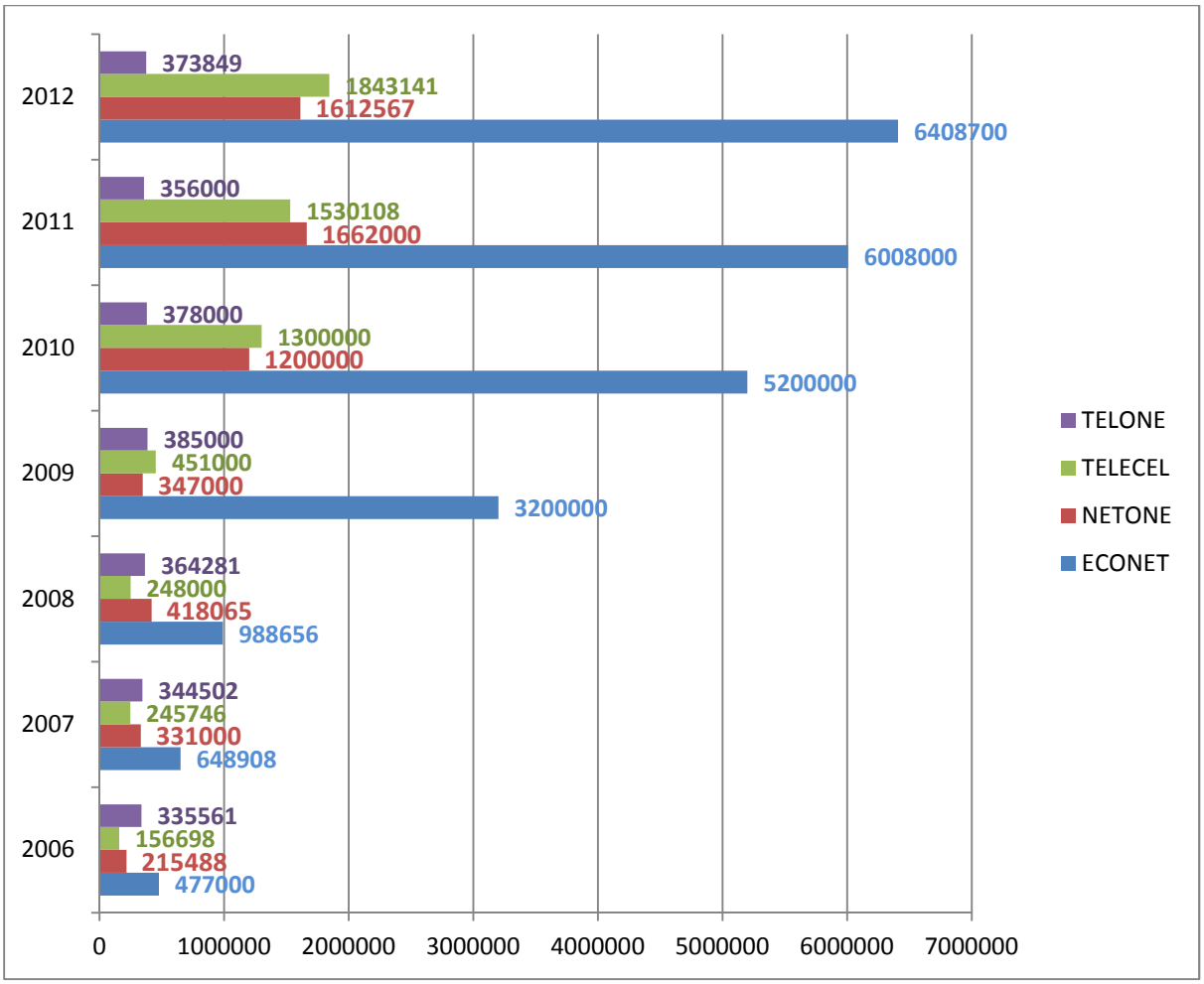
Before the deregulation of the telecommunications sector there was one player in the telecommunications sector, the Postal and Telecommunications Corporations (PTC). The Postal and Telecommunications Act *[Chapter 12:05]*, Act No. 4 of 2000, which came into operation in 2000 unbundled the PTC and enabled the creation of three different entities to operate as successor companies with postal, telecommunication and cellular telecommunication licenses respectively. This move saw the establishment of Zimpost, Tel One and Net One—public entities providing postal, telecommunication and cellular telecommunication services respectively. Econet Wireless was the first private entity to enter into the cellular telecommunications sector. These developments marked the deregulation of the ICTs sector. With the deregulation a number of players entered the

sector and brought in competition. At present there are three mobile cellular operators and one fixed telephone operator as shown in the graph below.

4.1.1. Mobile cellular and fixed telephone subscribers

Phenomenal growth has been realised by the two private mobile cellular companies while the two public entities (one mobile and the other fixed) have had stunted growth. This means that there are some serious issues that need to be addressed in the public sector entities such as levels of funding, adherence to corporate governance principles, as well as the need to commercialise in practical terms.- However, the overall picture is that this sector has realised substantial growth in mobile cellular subscription which has increased from three hundred and thirty-eight thousand four hundred and two (338 402) in 2002 to nine million eight hundred and sixty-four thousand three hundred and eight (9 864 308) by August 2012.

Table 1: Mobile Cellular and Fixed telephone subscribers:

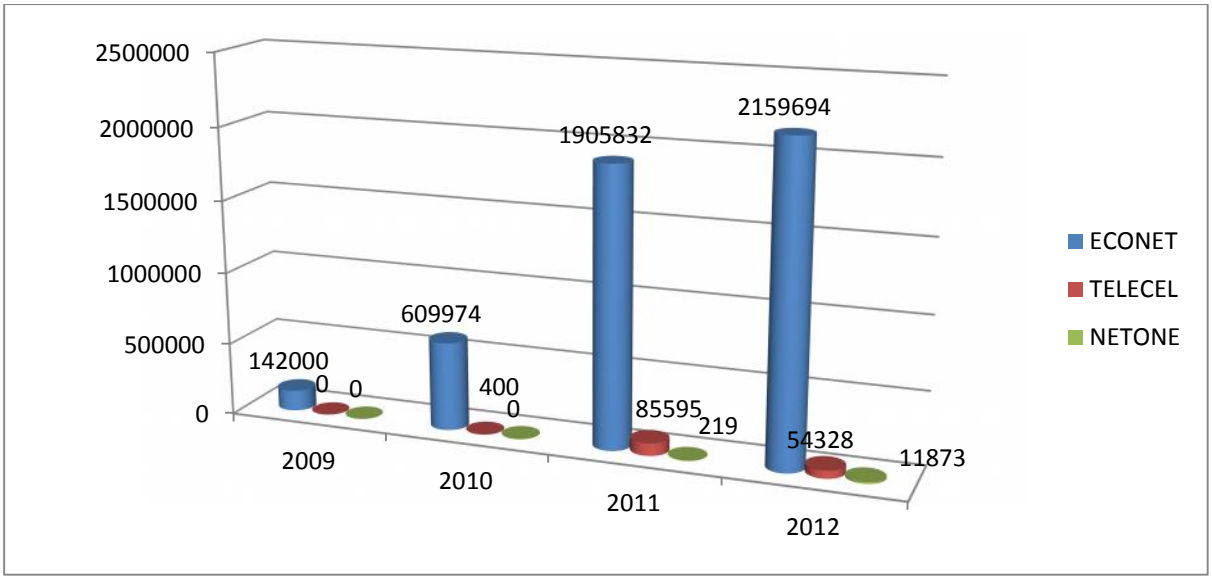


***Source**: POTRAZ telecommunications indicators database/ August 2012*

4.1.2. **Mobile Internet subscribers**

Further developments have been realised in the mobile cellular sector by the introduction of mobile Internet subscription, a phenomenon that started in 2009 in Zimbabwe with Econet providing this service. Telecel introduced mobile Internet services in 2010, and in 2011 Net One as well. The level of growth of this service is clearly manifested in the chart below. In 2009 when mobile Internet subscription was introduced there were merely one hundred and forty-two thousand (142 000) subscribers. As at August 2012, three years later, a total of over two million two hundred and twenty-five thousand eight hundred and ninety-five (2 225 895) mobile Internet subscribers was recorded – an increase of over 1460%. This means that there was an average growth of over 486% per annum.

Table 2: Mobile Internet subscribers



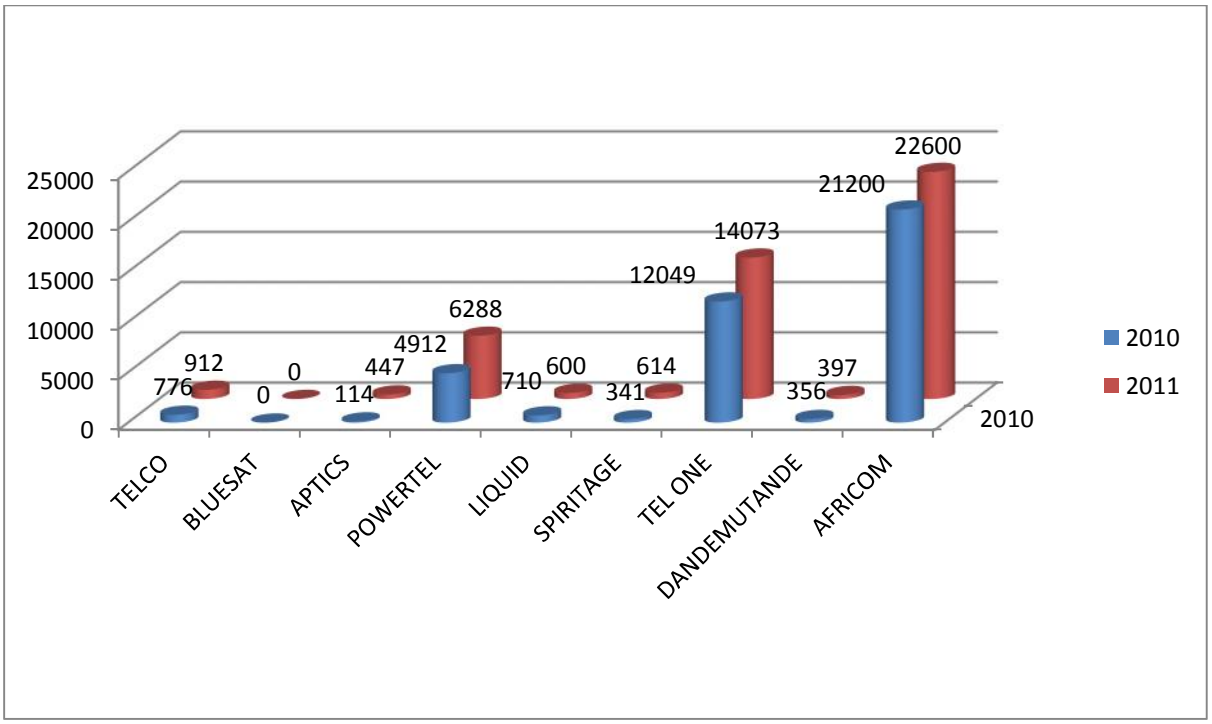
***Source**: POTRAZ telecommunications indicators database/ August 2012*

4.1.3. Internet subscribers

Another development that was realised after deregulation was the introduction and growth of Internet users in the country. Table 3 gives an indication of the Internet subscriptions by operator in the two consecutive years of 2010 and 2011. A total of nine (9) Internet Service Providers are registered with POTRAZ and from these the figure of over forty-five thousand (45 000) Internet subscribers was recorded by POTRAZ as at August 2011.

The aggregate of the mobile Internet subscribers and other Internet subscribers gives a total of 187 000 Internet subscribers in Zimbabwe.

Table 3: Internet subscribers

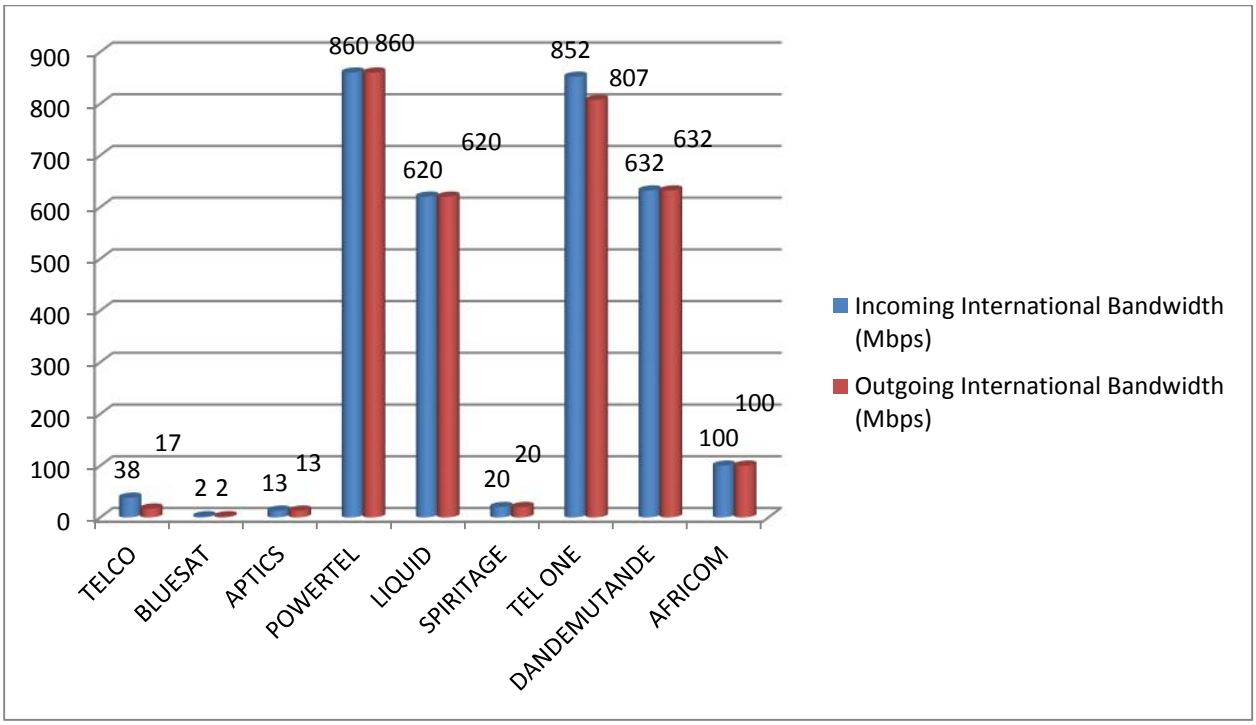


Source: *POTRAZ telecommunications indicators database/ August 2012*

4.1.4. Incoming and Outgoing International Internet Bandwidth 2011

The total incoming and outgoing bandwidth in Zimbabwe in 2011 was six thousand two hundred and eight mega bits per second (6 208 Mbps).

Table 4: Incoming and Outgoing International Internet Bandwidth 2011



Source: *POTRAZ telecommunications indicators database/August 2012*

4.2. Licenced Communications Providers

Internet Access Providers (IAP) whose licenses were up-to-date at the time of writing this policy as furnished by POTRAZ are nine (9). However, the total number of IAPs, including those whose statistics relating to their Internet subscribers and incoming and outgoing bandwidth was not recorded with POTRAZ, is twelve (12), as appears in Table 5 below. Two public data service providers and forty-five (45) private network licence holders are also registered with POTRAZ.

Table 5: Licenced Communications Providers

	Numbers
Fixed Telephone Operators	1
Mobile Cellular operators	4
Public Data	2
Internet access Providers	12
Private Network Licenses	45
Broadcasting Transmission Infrastructure	1
Public Broadcasting	1
Public radio stations	4
Private radio stations	2

Source: *POTRAZ telecommunications indicators database/August 2012*

4.3. Challenges faced in ICT sector in Zimbabwe

Despite the developments that are outlined above the ICT sector has been faced with a number of challenges. The following challenges in the ICT sector are identified:-

(a) inadequate communications infrastructure;
Due to the lack of affordable and widespread broadband infrastructure in the country, it has not been easy for government to put services online when only a small minority of the population has Internet access. Most of the online services by government are found in the major cities leaving small centres and more remote areas without any form of e-service being offered to the public;

(b) inadequate ICT facilities, ;
The shortage of electricity in the country has adverse effects on the development and use of ICTs;

(c) inadequate ICT skills;
The shortage of skilled manpower in unrolling ICT education in schools starting from the earliest stages compromises the skills base for ICT's development.

(d) unsatisfactory institutional arrangements.
The convergence that manifests itself in the information and communications technology sector has rendered it unnecessary to have multiple institutions that end up with overlapping functions; and

(e) inadequate financial resources.

This has affected the growth of the ICTs sector in Zimbabwe insofar as the Government has not been able to avail state of the art infrastructure that gives enough broadband to be able to adequately feed the whole Zimbabwean society;

(f) Inadequate data management systems in place.
There is inadequate legislation in place that provides for the legal requirements for the use and management of data. This renders the use of ICTs insecure among the public;

(g) Limited high speed connectivity, or inadequate national bandwidth as can be seen by the statistics in Table 4, where only 6 208 Mbps were recorded in 2011;

(h) Insufficient awareness campaigns;

(i) Stringent licensing regime resulting in a limited number of players in the sector; and

(j) Limited local ICTs entrepreneurship.

In order to overcome the various challenges in the ICT sector there is need on the part of both the public and private sectors to come up with a well focused approach in addressing these at a broader level. The following recommendations should be seriously considered.

4.4. Policy Statements

There is need to —

(a) improve existing ICT infrastructure and develop high speed broadband;

(b) promote and encourage effective utilisation of existing communications infrastructure;

(c) increase bandwidth on the national backbone and international gateway systems to enhance speed and efficiency of operations;

(d) develop supportive and enabling infrastructure to ensure equitable access to ICTs by all members of the society;

(e) promote local production of ICT products and services to ensure relevance of content in local languages and use of appropriate technologies that meet international standards;

(f) establish institutional mechanisms to co-ordinate inter-organisational planning, policy-making and implementation of strategies to develop ICTs taking into account the convergence of broadcasting, telecommunications and on-line computer services;

(g) implement measures to develop and retain skilled human resources in the ICT sector;

(h) introduce and enforce stringent quality of service standards in the provision of ICTs;

(i) create a conducive environment for investment in the area of ICT through public private partnerships;

(j) promote local research and development in software and hardware relevant to the ICT sector;

(k) promote awareness and use of ICTs;

(m) develop alternative sources of energy e.g. solar, geo- thermo;

(n) encourage the development, exploitation and protection of intellectual property rights (IPRs) in the ICTs sector;

(o) harmonise and improve the regulatory frame work for protection of data; and
(p) relax the licensing regime.

5. ICTs Infrastructure

ICTs infrastructure comprises of the tools, hardware and physical structures that allow for connectivity and interconnectivity. Examples of these are electricity, optic fibre, base stations, computer hardware and software, satellites and roads. Of these types of infrastructure there is the backbone infrastructure (which is the artery upon which all information is communicated) and access network (last mile infrastructure). This entire infrastructure is necessary for the public to gain access to information and the more the broadband the more the information flow is realised.

Both the backbone structure and access network is available in Zimbabwe but not adequate. In terms of the consultations with stakeholders the back bone infrastructure is weak. Due to the weak back bone structure the penetration rate is low. The coverage of both cellular and fixed infrastructure countrywide is not 100%. Although there has been an increase in the number of mobile subscribers since 2005, this is mainly concentrated in the urban centres. The radio and television coverage is also low. Due to poor international communications infrastructure there is low bandwidth. Computer hardware is not enough even though government is on a mission to equip every sector. In cases where people have the hardware, the cost of bandwidth is high. The digital divide between people in the urban areas and rural areas with the latter being left behind in terms of technological advancement is conspicuous. Base stations are not adequate as they are concentrated in urban centres and major highways leaving the remote areas. Electricity, a major enabler of ICTs is not adequate. Although inroads have been made to connect major centres to the outside world through introduction of optic fibre, the optic fibre rolled out so far is not yet adequate. Satellite coverage is sufficient. Wireless infrastructure is inadequate as it is linked to base station expansion. The national road network is of lower standard in the small centres and remote areas making it difficult to deploy equipment for infrastructural development.

The consultation process further revealed that the rate of investment is not as high as would be ideal for steady growth in the sector, due to financial constraints, among other issues. The current single transit gateway policy does not allow for pure voice over internet protocol (VOIP) to prevail. This causes imbalance in the sector by favouring operators who came in ahead of new entrants. Consultations have revealed that there are serious barriers to entry. Companies with more funding are reverting to more expensive categories of operation. Internet Access Providers provide access only, while Internet Service Providers are allowed to lay fiber to Clients, but not to build national level infrastructure, and mobile operators set up infrastructure. Policy restricts Tel One monopoly to set up national backbone. Other players with capacity are not allowed in.

Stakeholders were of the view that existing infrastructure was not being fully utilised as is evidenced by a silent policy on sharing. The non sharing of infrastructure in the sector is viewed as a waste of resources. Currently, telecommunications providers are sharing infrastructure on a

purely contractual basis with the Regulator playing a limited oversight role. This has seen the "traditional" operators who already have infrastructure literally arm-twisting the smaller operators. Companies are only agreeing to share base stations when there is a commercial benefit accruing. This has resulted in unnecessary duplication of infrastructure. Ideally, telecommunication operators should compete on the basis of services as opposed to infrastructure.
Although there have been significant inroads in ICT infrastructure, e.g. introduction of 3G, optic fibre, VSAT, wireless communication, pay per view like DSTV there is still scope for updating some of the infrastructure. When it comes to ICT enablers it was observed that the energy sector, particularly electricity infrastructure, is old and always refurbished.

As to the coverage by ICT infrastructure the consultations revealed that electricity is wide spread with the Rural Electrification Agency becoming conspicuous in its efforts to bring electricity in the provinces. However, more effort is still needed in this area.

On the question of affordability, consultations revealed that computer hardware is still expensive for most people despite the introduction of duty free importation of these goods. Access to Internet was found to be still expensive as well. Satellite dishes have become more expensive as one has to have back up power to fully enjoy the benefits of DSTV due to power outages.

5.1. Policy Statements

Government should—

(a) create attractive investment policies in the ICTs sector, including facilitation of Public Private Partnerships, especially in infrastructure development to realise growth in ICTs;
(b) allow more players in the energy sector and promote extensive use of solar energy through establishment of solar farms;
(c) promote local manufacture or assembly of ICTs hardware to ensure their availability at affordable cost;
(d) explore and implement mandatory ways of ensuring sharing of infrastructure in a manner that enables co-existence between the service providers to minimise the cost of rolling out ICTs infrastructure and improve efficiency across the board;
(e) support investment towards continuous ICTs research and development so that ICTs infrastructure is up to date;
(f) step up the maintenance of roads and construction of new roads connecting all the remote areas to the provincial capitals and highways;
(g) adopt a policy that allows ICTs users to own mobile numbers for life. When they are fed up with one service provider they can migrate to another service provider with the same number. Users should not be locked to a service provider because they want to maintain a number known by their colleagues and business associates; and
(h) remove tax on ICTs equipment for a given period.

6. e-Government

e-Government includes all electronic transactions that facilitate service delivery among government organs, ministries, institutions, departments and agencies (G2G); between government and the private sector (G2P), and between government and the citizenry (G2C).

e-Government uses ICTs to provide on-line—

(a) convenient access to updated, interactive and relevant government information and services;
(b) timely delivery of public services; and
(c) efficient and effective methods of conducting business transactions.

Not all government departments provide current information online. The Public Financial Management System (PFMS), the Salary Service Bureau (SSB) and the Government Internet Services Provider (GISP) are available at the provincial level and not available at district level. Currently there are challenges of infrastructure, (people have to travel to places where there's connectivity), and inadequate training in ICTs and capacity within government ministries. Support services in this regard are in their infancy. The development of the government portal has the effect of integrating all government departments and ministries.

6.1. Policy Statements

Government should—

(a) expand use of shared services such as government web portal, unified messaging and collaboration services and Voice over Internet Protocol (VoIP) across government;
(b) develop a National Information Security Strategy (cyber security) to protect electronic information storage and usage;
(c) develop a National Strategy for Internet Resource including Country Code Top Level Domain (CCTLD) Management Policy, among others;
(d) develop an e-Government policy and legal framework to facilitate implementation of the policy;
(e) ensure that every ministry/department and local authority develops and manages computerised information systems;
(f) ensure that every Government Ministry, Parastatal and local authority has an updated, informative and interactive website;
(g) create an e-Government Agency to coordinate, rationalise and supervise efforts by government entities working on ICTs;
(h) make e-Government services accessible to all citizens and in a language they understand;
(i) provide a systems security framework for e-Government;
(j) build capacity for e-Government;
(k) promote awareness campaigns and education on e-government services and the advantage of using them; and
(l) promote and encourage e-procurement.

7. e-Governance

e-Governance includes the use of ICTs in the following areas-

- Participation in the decision making processes by the citizens, e.g. formulation and implementation of policies,
- Making government accountable, transparent and effective and efficient,
- Facilitating the electoral processes, and
- Maintenance of law and order.

7.1. Policy Statements

Government should—

(a) promote the principle of Universal Access through deployment of ICTs resources to all parts of the country;

(b) develop on-line projects that provide updated, interactive and relevant information on governance across all levels of society;

(c) strengthen governance and legal framework that promotes participatory democracy and accountability;

(d) provide a systems security frame work for e-governance;

(e) establish an e-Governance agency to coordinate the interaction between government and the public;

(f) take measures to ensure that online services are provided for citizens' participation in policy issues;

(g) encourage establishment and use of local social networks to comment and contribute on several socio economic and political issues; and

(h) establish information centers in communal areas and growth points.

8. e-Education

Education is key to social, scientific and technological development. Zimbabwe's education policy has resulted in considerable quantitative and qualitative expansion, making education accessible to all children of school going age. This has in turn resulted in a literacy rate of 92%, the highest in Africa. This high literacy rate indicates that Zimbabwe has a high potential to be a knowledge society as the majority of its people can read and write. With ICTs, education should therefore become more accessible to all people in Zimbabwe and this can be realised through e-education.

"e-Education" refers to the application of Internet technology to the delivery of learning experiences. e-Education takes place in formal electronic classrooms, on corporate intranets used for just-in-time training, audio and video teleconferencing and in a variety of other technology mediated learning spaces. The primary tools of e-education are e-mail, e-meetings, e-expeditions, and the methodologies of a pedagogy known as e-learning.

E-mail makes it possible for individual learners to communicate with each other and with an instructor, when appropriate.
E-meetings that take place in real-time are known as chats and those that take place independent of time are called discussion forums or conferences. Both of these types of meetings make it possible to carry on facilitated explorations of learning topics. These electronic meetings can be supplemented with other tools such as electronic whiteboards, slide shows, video and audio clips, and so forth.
E-expeditions take participants on adventures into cyberspace or local space to more deeply explore specific topics. These journeys can include virtual visits to information rich Web sites or face-to-face visits to companies, laboratories, or other environments that best illustrate a particular learning subject. As with e-meetings, the participants can get together in real-time chats, telephone, or video teleconferences, and time-independent, text-based discussion forums—but all accessed from a central Web site or "portal" created especially for the expedition.

E-learning is what happens when participants learn together in an environment that is enriched by technology. E-learning usually involves interaction between learners and materials, between learners and an instructor, and among the learners themselves. In depth exchanges of information facilitated by email, "chat" and "discussion" software are commonly used to create the e-learning environment. In e-learning, learners are often responsible themselves for the nature, direction, and timing of the learning so that they are able to integrate personal, work team, and organisational needs into a comprehensive learning program.
Thus, **e-mail + e-meetings + e-expeditions + e-learning = e-education.**

8.1. Policy Statements

Government and the private sector should—

- **(a)** provide equitable access to ICTs enabled education and training in all parts of the country, including disadvantaged communities;
- (b) facilitate acquisition of basic, applicable and affordable ICTs equipment and software that is vendor neutral;
- (c) facilitate the acquisition, development and use of open source software;
- (d) build ICTs skills in the education and training sector;
- (e) promote stakeholder participation and partnerships in the development of the education sector;
- (f) promote training in software development, provision of ICTs service and ICTs resources development;
- (g) promote e-learning and use of e-learning materials throughout Zimbabwe;
- (h) standardise ICTs in the education and training sector;
- (i) embed ICTs literacy in the pedagogy of schools, colleges and universities;
- (j) encourage, promote and apply research and development in ICTs in all sectors of society;
- (k) develop an ICTs curriculum in education;
- (l) introduce information technology as a mandatory subject at all levels of education, e.g. from pre school to tertiary level;
- (m) resource entrepreneurial innovation and development; and

(n) formulate a sector specific policy to enable achievement of all the above recommendations..

9. e-Commerce

E-Commerce is the buying and selling of products or services over electronic systems such as the Internet and other computer networks. Electronic commerce draws on such technologies as electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web at least at one point in the transaction's life-cycle, although it may encompass a wider range of technologies such as e-mail, mobile devices and telephones as well.

There is need to ensure that e-commerce infrastructure is secure and reliable.

9.1. Policy Statements

Government should—

(a) establish national standards for direct marketing online;
(b) create and expand a conducive and enabling environment for e-Commerce;
(c) cultivate an e-commerce culture, which fosters competitiveness, makes business easy, quick, secure and cost effective especially among SMEs in both national, regionally and international transactions;
(d) promote local and international smart partnerships on e-Commerce;
(e) develop, implement, and promote the development and implementation of appropriate security and legal systems for e-commerce encompassing e-transactions i.e. encryption and recognition of digital signatures; and
(f) promote awareness about trading safely on-line.

10. e-Agriculture

Agriculture forms the backbone of Zimbabwe's economy and accounts for up to 25% of the country's GDP. The modernisation of agriculture through the systematic adoption and use of ICTs will contribute directly to food security at national and household levels, beneficiation of agricultural produce, effective land management and creation of national wealth.

10.1. Policy Statements

Government should—

(a) promote and support the development of and access to affordable ICTs in land and water utilisation;
(b) facilitate the development of user friendly, accessible software and provision of ICTs-enabled infrastructure in the production, processing and marketing of agricultural products;
(c) promote the use of ICTs in environmental forecasting and prediction in support of sustainable agricultural development;

(d) promote the establishment of community radio stations that promote agricultural activities;
(e) encourage and promote continuous upgrading and updating of ICTs in the agricultural sector; and
(f) promote the use of ICTs in the provision of updated statistical information on agriculture.

11. e-Tourism

e-Tourism is the digitisation of all the processes and value chains in the tourism, travel, hospitality and catering industries that enable organisations to maximise their efficiency and effectiveness. It includes all business functions, such as e-commerce and e-marketing, e-finance and e-accounting, e-human resource management, e-procurement, e-strategy, e-planning, and e-management.

The tourism sector conducts most of its business such as flight and hotel bookings online.
ICTs in the tourism sector is used for monitoring and forecasting weather patterns of intended destinations, location identification, publicity, on-line payment systems, information collection and management.

11.1. Policy Statements

Government should—

(a) promote the establishment of an enabling environment for e-Tourism and sustainable environmental management;
(b) facilitate integrated interactive ICT systems in the tourism sector; and
(f) develop and continuously upgrade and update ICTs in the tourism sector.

12. e-Environment

E-Environment is the use and promotion of ICTs for the purposes of environmental assessment and protection, spatial planning, and the sustainable use of natural resources, and it includes public participation. The consultations revealed the lack of a policy position for dealing with e-waste, or regulations that put e-waste in the same category as other hazardous substances. It is also important to note that ICTs have a role to play in reducing carbon waste.

12.1. Policy statements

Government should—

(a) support the development of an ICTs infrastructure for e-Environment;
(b) support the Open Government Data Initiative (OGDI) solution for e-Environment, to develop and implement free, open-source, cloud-based collection of software assets

that government organizations can take advantage of. The Open Government Data Initiative (OGDI) is a cloud-based, open software solution that enables publicly-available government data to be easily accessed using open data and open development protocols;

(c) promote access to electronically stored environmental data and information by establishing and maintaining community web access points;
(d) promote international cooperation on the Digital Earth vision, and enable the Digital Earth technology to play key roles, inter alia, in economic and social sustainable development, environmental protection, disaster mitigation, natural resources conservation and improvement of human being's living standard; and
(e) establish rules and regulations that protect against the dumping of substandard or obsolete ICTs equipment within our borders.

13. e-Health

According to Gunther Eysenbach in the Journal of Medical Internet Research, e-Health is defined as

> *"an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterises not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology."*

ICTs in the health delivery system are used in monitoring, data gathering, and processing and information dissemination. There are numerous initiatives by stakeholders to roll out ICTs projects in the health sector. It should be noted that there is less development and use of ICTs in the public health delivery system as compared to the private health delivery system.

13.1. Policy Statements

Government should—

(a) support the development of an e-Health policy to promote the development, access to
and use of ICTs in the delivery of health services in all sectors of the society;
(b) promote the use of ICTs in disease surveillance and control through research;
(c) develop accessible, free, integrated and interactive national and international ICTs systems for information sharing in health services delivery;
(d) ensure continuous upgrading and updating of ICTs in the health delivery sector; and
(e) bridge the digital divide between the private and public health delivery system.

14. e-Mining and e-Manufacturing

Uses of ICTs in the mining sector vary between the large mining houses and the small-scale mines. ICTs in the mining and manufacturing sectors can be deployed in mineral ore prospecting and ore body modeling, minerals beneficiation, improving quality of products, marketing, automation control, information gathering, processing and management.

14.1. Policy Statements

Government should—

(a) promote and support the education, development, access and use of ICTs in the mining and manufacturing sectors;
(b) support the development and use of ICTs that are environmentally friendly in national and international trade;
(c) promote environmental management in mines using ICTs; and
(d) ensure continuous upgrading and updating of ICTs in the mining and manufacturing industry.

15. e-Transport

The supply and maintenance of ICTs equipment depend on a sound road, rail and air network. ICTs in the transport sector can, among others, be used for monitoring, navigation, forecasting, information gathering and management.

15.1. Policy Statements

Government should –

(a) promote and support the development, access to and application of ICTs in air, water, road and rail transportation;
(b) develop and deploy ICTs based systems for traffic management;
(c) promote use of ICTs for security management and monitoring in the transportation sector; and
(d) ensure continuous upgrading and updating of ICTs in the transport sector.

16. Social Networks

A number of social networks have sprung up in the recent past and these have had great impact on the way information is relayed in the global village. There are advantages and disadvantages of social networks. The advantages relate to maintaining communication and the possibility to reunite friends and relatives whose contacts may have been long lost.

16.1. Policy Statements

Government should –

(a) promote and encourage public education on the effect of responsible and irresponsible use of social networks such as Twitter, Facebook and other applications for socio economic and political purposes; and
(b) encourage the development of local social networks.

17. Research, Innovation and Industry Development

In terms of the countrywide consultations the following were identified as gaps in the area of Research, Innovation and Industry Development:

(a) Limited collaboration at national and regional levels between research institutions;
(b) Few specialised ICTs research institutions and generally low level of ICTs research capabilities or research outputs and higher degrees in ICTs;
(c) Limited high speed connectivity within and between research and tertiary institutions and other centres of excellence;
(d) Low levels of ICTs manufacturing capacity and few fiscal incentives for developing manufacturing capabilities;
(e) High cost of access devices and software due to limited soft funding sources and low economies of scale in purchasing;
(f) Lack of ICTs incubator facilities;
(g) Lack of plan for dealing with e-waste, or regulations that put e-waste in the same group as other hazardous substances; and
(h) Lack of awareness of ICTs role in reducing carbon waste.

Current research endeavours are characterised by attachment of students from universities to the Research Council of Zimbabwe (RCZ) and the Scientific and Industrial Research and Development Corporation (SIRDC). The Harare Institute of Technology has some of its students attached to Korea whilst private companies operate in isolation for direct clients. There is no conceited effort to link institutional research with industry. Zimbabwe is therefore currently behind in technology development because lecturers have not done any industry work. Students only do their research and there are no institutions to support that. Some university send students on attachment but some companies are refusing to take them because their programmes are not linked to industry needs.

Innovation capacity building measures have been taken by the Government through various initiatives, which include establishment of —

(a) the Innovation and Commercialisation Fund administered by the Ministry of Science and Technology Development;
(b) the Achievers' Awards administered by the Ministry of ICTs; and
(c) the RCZ Fund, which has launched a database of research that has been done. These measures, noble as they are, still face challenges of adequate funding.

17.1. Policy Statement

Government should—

(a) put a policy framework that compels industry to partner with educational institutions;
(b) legislate for a procurement quota system on locally developed solutions;
(c) adopt a “Buy Zimbabwe” policy and promote and support public campaigns on such policy for local ICTs innovation.
(d) strengthen capacity of protection of ICTs innovation through adoption of a clearer sector specific policy on intellectual property rights;
(e) promote and encourage collaboration at national and regional levels between research institutions;
(f) facilitate establishment of ICTs incubator facilities and promote technology transfer and adaptation;
(g) provide some tax holidays for innovative ICT companies and those that take students on industrial attachment that is connected with research and innovation;
(h) encourage Strategic partnerships by providing incentives to foreign investors who transfer technological knowhow to locals; and
(i) ensure that research outcomes are widely publicised; and

18. Capacity Building and Content Development

18.1. Human Resources

Observations have been that while skills training in ICTs occur at various levels in both private and public institutions the policy guidelines were not adequate in so far as there is limited pool of ICTs skills and training facilities. The number of personnel with ICTs qualification is not adequate for the country. There is no standardised ICTs training certification. The need to widely expose people in employment as well as the youth and children in ICTs came out so vividly. It was evident that in the education sector most teachers or tutors were now lagging behind the youth in so far as ICTs literacy is concerned. Such a situation does not augur well with the principle of e-education and e-learning.

18.2. Content development

The low level of public and private investment in digital content on local and indigenous knowledge will result in the erosion of local and indigenous knowledge if no conceited efforts are put in place. It was interesting to note that there are only two public data operators in the country according to statistics from POTRAZ. This lack of investment in digital data is not only limited to local and indigenous knowledge but government data as well.

Some local content has been developed for some companies e.g. Econet and Telecel, however these are viewed as isolated cases as there has been no unrestricted publication.

18.3. Financial and materials resources

Due to limited public resources the Government has found it difficult to switch from manual to automated systems at a large scale. This is illustrated by the unavailability of certain

e-government applications; for instance PFMS in smaller centres and remote areas. Capacity building in this area becomes crucial. Also the limited amounts of early startup funding for ICTs businesses hampers the capacity for innovativeness.

18.4. Policy Statements

Government should—

(a) ensure that ICTs development/engineering is taught from pre-school to University

(b) ensure that ICTs training is decentralised to the lowest possible level eg farms, rural areas and high density areas.

(c) facilitate and encourage the development of content that is culturally, socially, economically, and religiously acceptable and pertinent.
(d) embark on a skills development programme through training of all civil servants in ICTs skills in order to avail government data on government websites in the official language as well as the local languages;
(e) mobilize financial resources in order to be able to switch to automated systems;
(f) encourage public and private investment in ICTs e-governance applications development; and
(g) promote and support efforts to protect the public from malicious and other untoward sources of data or information.

19. Gender, Youths, Children, People living with Disabilities and the Elderly

The interest of men and women, youths, children, people with disabilities (PLWDs), the elderly, and orphans & vulnerable children (OVC) feature in all the sectors of the economy and the social and political life of the nation. Their impact, as cross cutting issues, differs from sector to sector. However, certain common trends can be identified in all the sectors.
Gender mainstreaming is a strategy to ensure that the concerns and experiences of both men and women are integrated into the design and implementation of ICTs programmes so that they benefit equally from the same.
Youths and children constitute a high proportion of ICTs users and opportunities should therefore be created to ensure their full participation. ICTs should therefore also respond to the needs of orphans and vulnerable children to ensure their inclusion and participation.

Studies have shown that the elderly respond slowly to change and shun the use of new technologies. ICTs should be developed to accommodate them.

19.1. Policy Statements

Government and the private sector should collaborate to—

(a) ensure gender equality and equity in access to and use of ICTs across all sectors of the society;
(b) bridge the digital divide in relation to men and women, the youths, elderly, people with disabilities, OVC by designing sector specific policies that promote the effective use of ICTs by these various social sector;
(c) create opportunities for youths and children in the development and use of ICTs particularly in relation to content development, education, employment and income generation;
(e) provide special equipment and related accessories for PLWDs;
(f) children should be taught ICTs skills at a tender age so that they fully embrace these technologies;
(g) create opportunities to involve the participation of the youths, children and OVC in the design, implementation and use of ICTs programmes; and
(h) ensure the protection from exploitation of children, women and other vulnerable groups

20. Regulatory framework on ICTs and Institutional Mechanisms

The Regional Indicative Strategic Development Plan (RISDP), which was adopted in 2003, provides an indicative framework to guide SADC member states in the achievement of the SADC objectives over a 15-year period. It defines the vision, mission and strategic objectives for a broad range of development goals, including the basis for ICTs development, focusing on ICTs role in transforming SADC into an information-based economy with specific objectives and deadlines. As a means to address these challenges, measures to assist Member States to develop their national ICTs policies and strategic plans based on the SADC guidelines were adopted. As part of implementation of the measures SADC created an ICT development strategy called the e-SADC Strategy Framework, a document approved by the SADC Ministers responsible for telecommunications, Postal and ICTs in Luanda in May 2010.

The e-SADC framework addresses convergence issues and harmonization of ICTs infrastructure, services and indicators; promotes ICTs usage for regional economic integration, enhancement of connectivity and access to ICTs services. It also addresses, apart from issues of **policy, legislation and regulation**, crosscutting issues of gender, capacity building and the development of e-services, which issues are discussed in detail elsewhere in this policy. Evidence abounds that convergence is occurring at the technological level. Digital technology now enables both traditional and new communication services to be provided over many different networks. Current activity in the market suggests that operators from the sectors affected by convergence are acting on the opportunities provided by technological advances to enhance their traditional services and to branch out into new activities. Convergence is not just about technology. It is about services and about new ways of doing business and of interacting with society. The current Zimbabwean legal and regulatory framework which places a lot of emphasis on technology when it comes to licensing of operators is lagging behind technological developments thereby making it extremely difficult for telecommunications operators to go about their business. There is de facto as opposed to de jure convergence. Zimbabwe is a Member State of SADC and fully participates in all SADC activities. It is therefore necessary that Zimbabwe should not lag behind

when it comes to addressing issues of convergence and harmonisation of ICTs infrastructure, regulatory framework, and services.

The key policy and regulatory constraints for the sustainable growth of an ICT programme in Zimbabwe are as follows:

(a) lack of streamlining of functions of existing regulatory and administrative institutions. This affects the growth of the ICTs industry;
(b) non existence of legislation dealing specifically with cyber security issues – the absence of cyber laws exposes the populace to bad content; e.g. pornography and allows the commission of cyber crimes to go unchecked;
(c) non existence of a policy governing issues of convergence in the ICTs sector;
(d) non existence of a policy on consumer protection - people can advertise for non-existent products; and
(e) few players in the market due to policy- induced constraints as earlier noted in this policy

20.1. Policy Statements

Government should—

(a) take legislative measures to ensure that there is an integrated and autonomous regulatory body in the ICT sector that will deal with related issues, including the licensing regime as a way of dealing with the issues of convergence;
(b) ensure that enforcement of existing laws is taken seriously;
(c) ensure that there is quality standards on ICT products by putting in place legislation on standards;
(d) decentralise the Ministry responsible for ICTs as well as ICT exhibitions;
(e) develop political, institutional, economic, legal and security frameworks to facilitate development and use of ICTs;
(f) develop change and project management skills required to integrate ICTs into the public sector;
(g) undertake continuous and decentralised monitoring and evaluation of ICT programmes, interventions and outcomes;
(h) undertake adequate and regular policy reviews in consultation with stakeholders; and
(i) promote establishment of sustainable and accessible ICT resource centres in marginalised areas to bridge the digital divide.

20.2. Other Specific Institutions and Sectors with a Role in Implementing ICTs Development Strategy

The Executive through the various Government structures, Legislature, Judiciary, Business Community and Civic Organisations, and Research And Academic Institutions have critical roles to play in the implementation of the ICT policy. Some of the roles will be coordinated through the respective Government Ministries.
As the driver of this policy the Government need to ensure that its role as provided for in all the various sectors is achieved and in so doing it will need to facilitate the participation of the specific institutions..

20.2.1. Role of Parliament

Parliament needs to:-

(a) advocate for the allocation and timeous availing of financial resources to sustain implementation of the ICT policy;
(b) promote and monitor effective and efficient utilisation of resources in implementing the ICT policy;
(c) ensure that good governance principles are applied and adhered to in implementing the ICT policy;
(d) enact and periodically review legislation governing ICTs, in line with current trends; and
(e) assume leadership role in the usage of new technologies.

20.2.2. Role of the Judiciary

. The Judiciary needs to interpret the laws which govern the use of ICTs and to effectively do that it needs to embrace the knowledge of ICTs in their daily affairs. With continuous growth of the ICT sector, it is expected that disputes and conflicts will arise. Judges and Magistrates need to be ready for questions of jurisdiction in respect of broadband disputes. They need to prepare for issues regarding number portability and sim card registration, consumer-related disputes and issues relating to licensing of operators, licence terms, competition issues and possible judicial review of the dispute resolution process that may arise due to use of ICTs. Cybercrime and other technologically enhanced crimes are some of the topics judges need to be ready to handle in court. There is real and potential danger of damage being done to the industry by judicial decisions flowing from lack of proper understanding of the legal issues involved in the ICT sector. The other great danger is continuous dependence on the analog process of doing things by the Judiciary as this may impede the growth of some economic sectors, specifically the ICT sector.

It is therefore recommended that the judiciary and other law enforcement agencies, with the assistance of the Ministries responsible for ICTs and education, embark on a process that educates the incumbents on ICTs.

20.2.3. Role of Research Institutions (RIs)

Research Institutions should—

(a) expand and consolidate research and development in the use of ICTs;
(b) use ICTs to extend scientific and research facilities taking advantage of the Internet;
(c) assume leadership in development and testing new technologies;
(d) create networked and multidisciplinary research teams on ICTs; and
(e) initiate and support ICT innovation and incubation, technology transfer and adaptation.

20.2.4. Role of Civic Society

Civic society should -

(a) provide advocacy and funding for the use of ICTs to vulnerable groups and the marginalised societies like rural areas;
(b) complement government efforts in all its efforts to develop and use ICTs in all sectors of the society;
(c) advocate for equitable distribution of ICT resources so as to allow for access and use of ICTs; and
(d) organise awareness campaigns on the use and advantages, as well as disadvantages of ICTs;

20.2.5. Role of Business

The Business Community should, as a part of corporate social responsibility—

(a) assist the local communities by funding ICT programmes; and
(b) participate in capacity building and content development areas for ICTs.

21. Conclusion

This policy recognises that ICTs contribute significantly to the reduction of social, political and economic inequalities, increase national productivity, enhance wealth creation and entrepreneurship, and increase efficiency in public administration. ICTs also strengthen democratic values and promote gender equality and the interest of marginalised groups.

The policy further recognises that in order for ICTs to act as an effective catalyst for national development, upgrading and substantial investment in high broadband ICT infrastructure and capacity building, as well as enabling institutional arrangements, are a prerequisite. It therefore follows that the policy is advocating for supportive organizational change as a first step in seeking to achieve national development through ICTs. Access to information by citizens on issues that affect their lives and capacity to 'voice' their views and concerns is a key factor in development. The policy therefore extols the need to put in place policies that promote the achievement by Zimbabwe of the status of a knowledge society.

The ICT policy also seeks to ensure that private sector interests and expertise create investments in which the ICT sector generates jobs, increases national productivity and empowers citizens through the amplification of choices brought by unfettered connectivity. In addition, for ICTs to yield increased development benefits, creative leadership is required from government, as the guardian of the public interest, especially in managing markets and establishing institutions to achieve public policy objectives. In this regard, a strong, committed and effective digital champion, always ready to invest political capital to achieve policy objectives is required at the highest level of government.

As a means of recognizing that ICTs cut across all sectors of the society and economy, this policy has sought to take cognizance of the needs of the various members of our society. The acid test for policy effectiveness therefore lies in the extent to which the deployment of ICTs buttress the development of human capacity, generates employment and income, creates wealth, enhances enjoyment of health and well being and promotes participation and expression of voice in favour of all citizens in the development process.

Existing and new public and private sector institutions across all sectors of the economy are expected to formulate sector based strategies/programmes to implement ICT flagship projects. Such projects would, inter alia, promote awareness of the benefits of ICTs, develop human skills in ICT, enhance research and training capability, demonstrate the benefits of public sector leadership and encourage public- private partnerships.