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## GOVERNMENT NOTICE

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### DEPARTMENT OF COMMUNICATIONS

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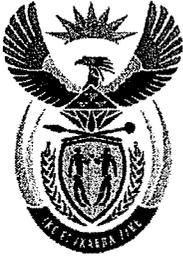
#### ICT POLICY COLLOQUIUM DISCUSSION DOCUMENT

I, Dina Pule, Minister of Communications, hereby publish a discussion document titled 'Defining a new era in ICTs for all South Africans' to facilitate discussions at the National ICT Policy Colloquium to be held on the 19<sup>th</sup> and 20<sup>th</sup> of April 2012.

The discussion document can also be found on the Department's website at [www.doc.gov.za](http://www.doc.gov.za)



**MS DINA PULE, MP**  
**MINISTER OF COMMUNICATIONS**



**the doc**

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DEPARTMENT:  
COMMUNICATIONS  
REPUBLIC OF SOUTH AFRICA

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# Defining a new era in ICTs for all South Africans

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The path to creating a  
National Integrated ICT  
Policy for South Africa

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Department of Communications

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## 1. OBJECTIVE

- 1.1. The purpose of this discussion document is to demonstrate the need to review Government's existing ICT policies in South Africa as well as to present recommendations and a way forward. The Department of Communications (DoC) is embarking on a comprehensive full policy review process of all policy documents post 1994 which will culminate in an integrated National ICT policy for South Africa.
- 1.2. This document's purpose is to highlight key areas which will help with preparation for participation in an important Colloquium driven process where the DoC plans to develop an integrated National ICT policy to usher in a new era in ICTs for all South Africans. At the outset, it is vitally important for all stakeholders reading this document to understand that the DoC is not articulating an internal vision but rather building a national integrated vision which needs to find expression in a pragmatic policy to advance an ICT industry and profile in South Africa which is tightly geared with the country's economic engine. The implementation of this vision therefore will require a constructive critique of past and current ICT policy construct and require a fresh look at the way forward.
- 1.3. Content contained in this document will provide a high level overview of the policy landscape and to describe the next steps which will lead to policy formulation in the new era. Thus it is not intended to be a comprehensive document in keeping with the phase of the process to follow.
- 1.4. ICT policy architecture post-apartheid focused on addressing the imbalances and consisted of a well formulated draft policy and discussion paper led process which then informed the legal context for promulgation of the various Acts. However the effectiveness of policy design especially in the last decade shows evidence of an

evolutionary policy development and not necessarily that of strategic ICT policy design to promote and catalyse economic growth in South Africa.

1.5. Characteristics inherent of an integrated policy need to reinforce the socio-economic transformation objectives of South Africa by accelerating access, affordability, uptake and usage of secure ICT infrastructure and services whilst addressing the competitiveness of the ICT industry as a whole. An integrated policy approach will also address some of the key issues which started to become segmented over the last decade. An integrated approach to building the new policy will therefore also serve as an important connecting bridge to the initial and more recently developed ICT policies in broadcasting, telecommunications, e-commerce and the postal services.

*Content presented in this paper will illustrate an apparent disconnect in policy and economic stimulus initiatives and thus motivate the requirement for a transparent and participative process involving the public and private sector to develop a National integrated ICT policy for South Africa. This paper will also highlight a critical success factor dependency for implementation of an integrated ICT policy being inter-governmental cohesion and ongoing private-public partnering support of the national ICT goals.*

1.6. Thus the process going forward will embrace an approach which incorporates a review of ICT policy effectiveness, take past learning's into account and through use of a participative engagement model, build a National integrated ICT policy for South Africa. Following this model of engagement with all stakeholders including end users of ICT systems and services in South Africa, the DoC plans to submit a National integrated ICT policy for cabinet approval in the first quarter of 2013.

## 2. THE DEPARTMENT OF COMMUNICATIONS

### 2.1 Mandate of the Department of Communications

The Department of Communications (DoC) mandate which is derived from relevant legislation is: *“To create a vibrant ICT Sector that ensures that all South Africans have access to secure, affordable and accessible ICT services in order to advance socio-economic development goals and support of the African Agenda and contribute to building a better world”*<sup>1</sup>.

- 2.1.1 In order to fulfill this mandate, the DoC’s core functions include that of developing ICT policies and accompanying legislation which create the conditions for an accelerated and shared growth of the South African economy. The DoC is also required to strengthen the ICT regulator in order to enable it to regulate the sector which ensures growth and stability in the sector as well as to also regulate the sector in the public interest.
- 2.1.2 Additionally the DoC has to ensure the development of secure, robust, reliable and affordable ICT infrastructure which enables the uptake and usage of ICT solutions and services to meet the needs of the country and its people.
- 2.1.3 The DoC has prioritised the building of an inclusive information society. This coordinated development of an inclusive information society is aimed at establishing South Africa as an advanced knowledge society in which information and ICT tools are key drivers of economic and societal development.
- 2.1.4 In order to fulfill its mandate, the DoC acknowledges the need for e-skilling the nation to achieve equitable prosperity and global competitiveness<sup>2</sup>. In this regard,

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<sup>1</sup> [www.doc.gov.za](http://www.doc.gov.za)

<sup>2</sup> DoC 2010: National e-Skills plan of action

the DoC has started with an initiative to establish the e-Skills Institute as a national catalytic collaborative agency to:

- coordinate efforts across key stakeholder groups in Business, Government, Education and Civil Society in our country, with other countries of like mind and with the relevant international agencies and global businesses;
- identify any duplications and gaps in a coordinated approach across all stakeholder groups;
- build collaborative approaches to addressing the needs; and
- develop processes that can evaluate the impact on the country's national goals as expressed in the Medium Term Strategic Framework (MTSF).

2.1.5 Lastly, the DoC is required to enhance the capacity of state owned entities as well as to exercise oversight over the operations and proper governance of the respective State owned Companies (SOC).

## **2.2 The DoC's State Owned Companies and Agencies**

2.2.1 The DoC is responsible for the following state owned companies and agencies viz., the South African Broadcasting Corporation (SABC), Sentech, National Media Electronic Institute of South Africa (NEMISA), the South African Post Office (SAPO), Postbank which is a subsidiary of the South African Post Office (SAPO), the za Domain Name Authority (.zadna) and the Universal Service and Access Agency of South Africa (USAASA).



**Figure 1: The DoC: State owned Companies and key portfolio organisations**

2.2.2 Additional information on each of these entities is presented later on in the document within the respective sections dealing with broadcasting, telecommunications and the postal services.

### 2.2.3 Independent Communications Authority of South Africa

The Independent Communications Authority of South Africa (ICASA) arose out a merger of then Independent Broadcasting Authority (IBA) and the South African Telecommunications Regulatory Authority (SATRA). This merger was enacted by the Independent Communications Authority of South Africa Act No.13 of 2000. In addition to developing ICT regulations, ICASA is also responsible for the issuing of Electronic Communications Network Services (ECNS), Electronic Communications Services (ECS) as well as Broadcasting Services (BS) licenses to service providers. The regulator is further required to enforce compliance with rules and regulations as well as act in the public interest protecting consumers from unfair business practices and poor quality services. Lastly, ICASA has to manage the effective use of radio frequency spectrum in South Africa.

Additional information on ICASA is presented later on in the document within the sections dealing with broadcasting, telecommunications and the postal services.

### **2.3 Other key government entities tasked with ICT mandate**

2.3.1 The State Information Technology Agency (SITA) was established in 1999 in provision of the State Information Technology Agency Act No. 88 of 1998. SITA provides mandatory and non-mandatory ICT services to Government and reports into the Department of Public Service and Administration (DPSA). The primary objectives of SITA include;

- Consolidation of the State's Information Technology resources
- Deliver cost efficiencies through solutions which leverage procurement scale;
- Enhanced system interconnectivity;
- Increased delivery capabilities; and to
- Support the delivery of e-Government

2.3.2 Broadband Infraco is a licenced SOC in the telecommunications sector which reports into the Department of Public Enterprises (DPE). It was established under the Broadband Infraco Act No.33 of 2007 with the aim of expanding the availability and affordability of access to electronic communications.

Broadband Infraco is required to make available long distance telecommunications network infrastructure capacity mainly to licensed private sector partners in order to unlock economic growth especially in the underdeveloped and underserviced areas. The company is required to expand the availability as well as affordability of access to the national and international wholesale broadcast telecommunications connectivity based infrastructure.

2.3.3 The Media Development and Diversity Agency Act No.14 of 2002 was published by Government in order to establish the Media Development and Diversity Agency (MDDA). The main aim of the MDDA is to help create an enabling environment for media development and diversity that is conducive to public debate and discussion and which reflects the needs and aspirations of all South Africans. The MDDA was also required to promote media development and diversity by providing support mainly to community and small commercial media projects in South Africa where this included encouraging ownership and control of access to media by historically disadvantaged groups.

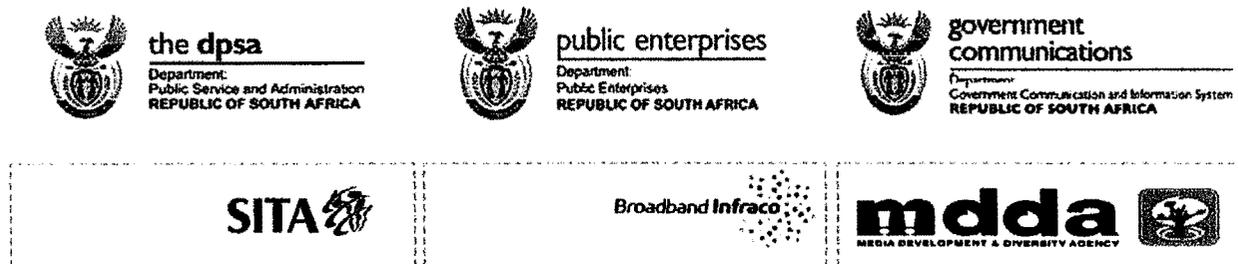


Figure 2: The DPSA - SITA, DPE - Broadband Infraco and Government Communications and Information System (GCIS) - MDDA

Reference is made to Broadband Infraco, SITA and the MDDA later in the document in the sections dealing with telecommunications, e-Government, digitising government and broadcasting respectively.

### **3. OVERVIEW: ICT LANDSCAPE IN SOUTH AFRICA**

#### **3.1 Policy history and developments**

- 3.1.1 In the period post 1994, the DoC and its predecessor department known as the Department for Posts, Telecommunications and Broadcasting developed well-researched and thorough policies for ICT's, comprehensively dealing with broadcasting, telecommunications, the postal services, ICT skills development, universal service and e-commerce.
- 3.1.2 An analysis of the strategy formulation and policy intervention as early as 1997 by the then Ministry for Posts, Telecommunications and Broadcasting shows intent to address ICTs relative position in the overall economy. The ICT sector which at that stage contributed to approximately 4% of South Africa's Gross Domestic Product (GDP) was already recognised as being one of the fastest growth areas which would contribute to job creation and overall economic growth in South Africa. Government at the time cited a need for investment into the industry by both government and the private sector to successfully grow the ICT industry. Due to this and congruent with the global shift away from an industrial goods and services based economy towards that of a knowledge based economy, the strategy and subsequent policy position by the DoC was already addressing key success drivers to transform the industry.
- 3.1.3 Towards government's own use of ICTs, the directional policy stance taken by the DoC at the time addressed the hitherto fragmented approach by Government's own spending and use of ICTs as an enabler of effective government operations. ICT enabled transformation of government was identified as a catalyst to drive growth and progress in the overall ICT industry in South Africa. It was similarly recognised at this stage that government as a key user of ICTs would not only improve its own overall operational effectiveness but had an obligation to provide and make available electronic based services to South Africa's citizens as well.



In a democratic country emerging out of the imbalances created by apartheid, key imperatives which needed immediate attention included broadcasting sound and television content in the eleven official languages, the genre of content as well as a requirement to develop skills and improve the racial representation of these skills in the more technical areas of ICTs.

- 3.1.5 **Figure 3** also clearly shows a participative driven policy process undertaken by the DoC through a green and white paper process which then led to the formulation of the various acts governing the ICT industry. Preceding this, transformation was informed by various political developments taking place in the country before 1994 as South Africa was preparing for a democratic government. Thus the Convention for a Democratic South Africa (CODESA) driven process had a priority focus on broadcasting in order to enshrine and cultivate an expression of democracy through the media.
- 3.1.6 Important outcomes and stated intent from a very visionary policy era in the late 1990's to the early 2000s by the DoC included the creation of Community Information Centres, Cyber cities, the Institute for Satellite and Software Applications (ISSA) software training programme with a focus on telecommunications and satellite software applications, telemedicine, a global satellite and cable strategy, government IT policy including online government and distance learning. This outlined a project based approach which would create measurable and visible outcomes of policy implementation.
- 3.1.7 At inception and as illustrated in **Figure 3**, the Triple Inquiry Report was mandated by the Independent Broadcasting Authority Act No. 153 of 1993 to conduct an inquiry into the viability of public broadcasting services with particular reference to funding, the limitations on cross-media control of private broadcasting services and the conditions regarding local television content and South African music.

3.1.8 A cornerstone of all ICT policies was the recognition that South Africa is a newly formed democracy and therefore in a state of transition. Thus, the policies developed by the DoC at the time had specific principles which formed fundamental building blocks to address universal service and access, local content, capacity building, a need to establish an independent regulator, commence market liberalisation in the telco and broadcasting sectors and to address funding requirements. A review of the policies subsequently developed for broadcasting, telecommunications and the postal sector clearly evidence robust objectives to steer the industry towards a regulated environment which addressed these key priority areas.

3.1.9 However the ICT policy design and intervention from the early 21st Century onwards to present day reflect an evolutionary approach to policy, an approach which is characterised as being mainly reactive to technology advancements and changes. At the time in global comparative terms, the regulatory environment even in developed countries could not keep pace with the fast changing advancements in ICT based engineering and technology solutions, increased mobility of people using telecommunications services and global access to information by users from different parts of the world across different legal jurisdiction and boundaries. Like most countries at the time, South Africa was focusing its policy in the right areas of ICT but found it challenging to deal with the convergences aspects of ICT. This together with other factors pertaining to the macro-economic environment had a direct bearing on the effectiveness of policy design and implementation.

3.1.10 Various attempts were made to reinforce the socio-economic policy imperatives into policy in the last decade, but a disconnect started to emerge between these national imperatives and ICT polices during this era. ICT policy started to look and feel evolutionary as it reacted to changes in convergence between telecommunications and broadcasting and national imperatives started to lose focus as a priority area. Policy design entered into a new phase of complexity

and needed to factor in socio-economic millennium development oriented goals reform on the one extreme and on the other extreme deal with market liberalisation and demands of a highly competitive market applying pressure for change. Another observation is that the policies tended to be broadly relevant versus directionally specific to guide industry growth and access to ICT services across all user groupings.

### ICT Policy and Regulatory Environment

Events Shaping Policy and Regulation

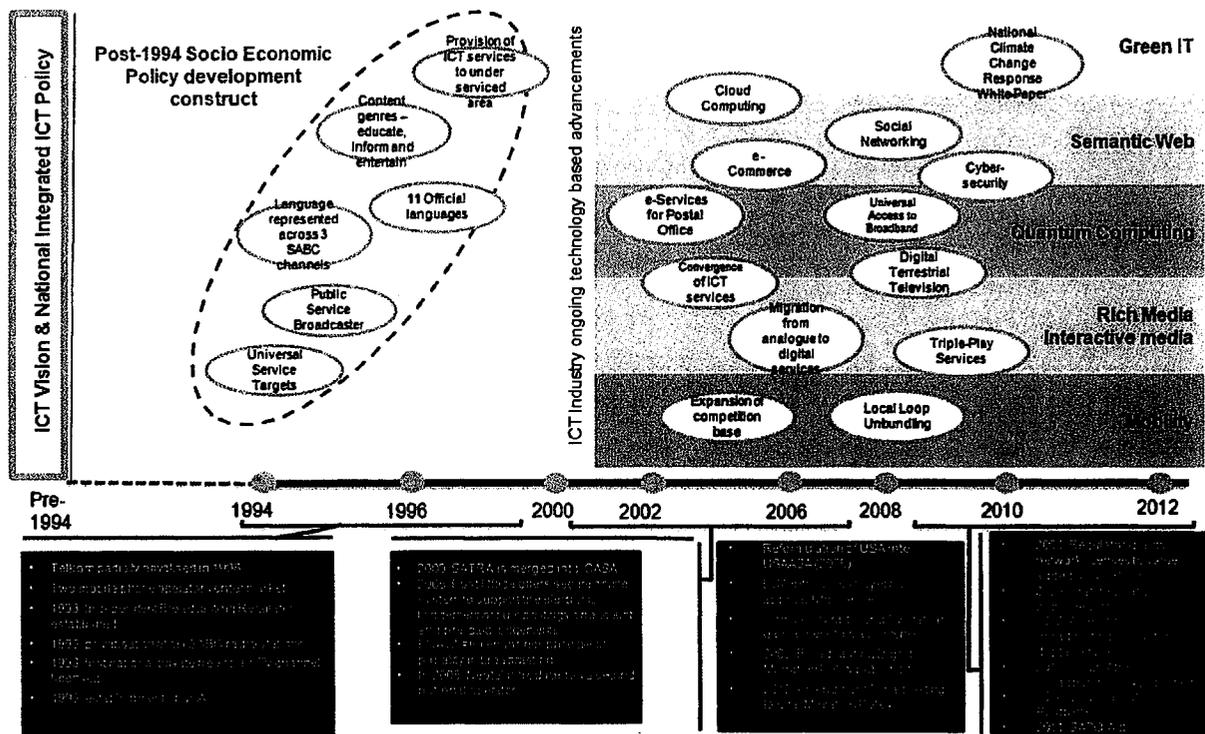


Figure 4: ICT Policy and regulatory environment - events shaping policy and regulation

3.1.11 As the DoC enters into a more integrated policy design approach for ICT policy, it is expected that the dynamically changing technology landscape as illustrated in Figure 4 will not be completely ignored, but rather where there will be a deliberate shift towards GDP linked initiatives. Technology trends both at a local and global level will continue to change course dynamically as demand for ICT services and systems increase and change. Whilst the DoC needs to constantly keep this on its policy radar, a tendency to become technology driven should be

avoided. An effective National integrated ICT policy regime should drive outcomes relevant to industry and citizens in order to improve gearing with the country's economic engine.

### **3.2 Developments in broadcasting industry**

- 3.2.1 A major deliverable produced by the then IBA in 1994 was the Triple Inquiry Report. Given that South Africa was a new democracy and understanding the major influential role the media plays in nation building and in addressing diversity across the full economic spectrum of South Africa's population groupings, only interim broadcasting licences were granted by the IBA until more informed decisions could be taken based on the findings of the Triple Inquiry Report. A three tier broadcasting model consisting of public, commercial and community broadcasting was introduced.
- 3.2.2 The DoC released a White Paper on Broadcasting in 1998 which sought to address the lack of a specific policy framework which the IBA Act did not set out. The scope of this policy process included setting up a broadcasting system which addressed universal access, diversity, national building, education and strengthening the moral fibre of South Africa society. Key issues raised in the White Paper included the need to restructure the SABC and the need for a single regulator to provide seamless regulation of telecommunications and broadcasting, an imposition of local content quotas and the introduction of community television broadcasting in South Africa. The Broadcasting White Paper also addressed the multi-channel broadcasting environment that would come about with the introduction of digital broadcasting.
- 3.2.3 The development of human resources and capacity building within the broadcasting sector amongst historically disadvantaged groups formed an important tenet of the Broadcasting Act No. 4 of 1999. Thus NEMISA was established as an institution of learning to mainly teach broadcast production skills for radio and TV. In addressing the objective to increase racial

representation in technical areas of broadcasting, NEMISA's prime focus was to train previously disadvantaged individuals and particularly women with broadcasting skills. Hence skills development together with ownership formed key transformation objectives of policy.

3.2.4 In preparation for the transition to digital broadcasting, the DoC released a digital broadcasting policy in August 2008. Using the same family of Digital Video Broadcast (DVB) standards viz. Digital Video Broadcasting Handheld (DVB-H), eTV and Multichoice were granted mobile broadcasting licences in 2010. A mobile broadcasting licence was also granted to Mobile TV, a new consortium who indicated that they would be trialing the Digital Multimedia Broadcasting (DMB) standard.

3.2.5 Broadcasting in South Africa, with a few exceptions is now a vibrant industry consisting of public service, commercial and community radio and television broadcasters operating across the country and providing content via satellite and terrestrial platforms. Sentech and the SABC play a key role in the fulfillment of the public services broadcasting mandate. eTV, Multichoice and Top TV are classified as private (commercial) broadcasters and the Kagiso and Primedia Groups own and operate television, multimedia and radio station assets in the country respectively.

3.2.6 After a delayed start for various reasons, the transition to digital broadcasting is a key focus area for broadcasters and other players within the ICT industry at present.

### **3.3 Developments in telecommunications industry**

3.3.1 A Green Paper on Telecommunications Policy was launched in July 1995 by the then Minister for Posts, Telecommunications and Broadcasting inviting public comment. This was followed by a white paper which sought to address universal service, market structure and the need for an independent regulator. Integrating

the rural and under-serviced historically disadvantaged groups received key focus and led to the formulation of the then Universal Service Agency (USA) which later became USAASA.

- 3.3.2 Congruent with recommendations by the World Trade Organisation (WTO) in that period to liberalise the telco market, the DoC then embarked upon the partial privatisation of Telkom as well as prepared for a second network operator to enter the market. Market liberalisation and especially all related activities pertaining to the partial privatisation of Telkom was not a simple task. Prior to 1994, Telkom was a parastatal and thereby providing a multitude of services within monopolistic market conditions.
- 3.3.3 Policy protection of the incumbent making a transition to a commercial market required comprehensive consideration. Whilst various protection measures were put into place to ease the transition of the incumbent into a competitive telco market giving the incumbent an opportunity to adjust to this new environment, the incumbent had to nevertheless also fulfill universal access obligations which were not met.
- 3.3.4 In order to promote universal service and access and reduce barriers to entry in the telecommunications sector, government took a decision to introduce the Universal Service Area Licences (USAL). These were to be licenced to build telecommunications infrastructure in areas declared as underserved (i.e. areas with less than 5% teledensity). Although government provided financial support to the licences USALs, many could not sustain themselves beyond this support.
- 3.3.5 Skills development in the telecommunications sector was driven by policy intervention and also led to the establishment of the space program as South Africa proudly participated in satellite technology initiatives. This program was especially targeted at the learning and development of skills within the Historically Disadvantaged Individuals (HDI) groupings. Looking back today, this

initiative was undoubtedly one of the aspects which enhanced South Africa's bid to host the Square Kilometre Array (SKA) project.

- 3.3.6 Ongoing market liberalisation together with the award of mobile operator licences to MTN, Vodacom and Cell C transformed the telco landscape of South Africa. South Africa like most developing countries is characterised by a large base of prepaid mobile subscribers where many of whom may have not previously had access to fixed line telco services. The promulgation of the Electronic Communications Act No. 36 of 2005 (ECA) gave rise to convergence based IT and telco services being offered in the market and more recently fixed mobile convergence based solutions are also being offered. The customer base of mobile operators therefore consists of both the consumer and business segments and where these products and services are sold via retail and wholesale distribution. The value chain of telcos operating in the converged technology space has also introduced various process changes which impact both internally to the operators as well as externally to the industry and market.
- 3.3.7 Sentech and Broadband Infracore are also significant players in the telecommunications sector currently offering backhaul and connectivity solutions to specific market segments. Government's support of the undersea cable projects and more especially the role the DoC plays in regional African programs to increase connectivity across the continent has provided a good foundation to drive down prices and increase access to secure and affordable ICT services.
- 3.3.8 Some of the complexities telecommunications policy and regulation had to deal with include that of effectively catering for facilities leasing, co-location, wholesale products and fair pricing as well as the separation of infrastructure and services whilst also continually trying to effect changes in pricing and affordability to the business and consumer segments.

### **3.4 Convergence**

- 3.4.1 Convergence came about in broadcasting and telecommunications mainly through the introduction and increased usage of digital based systems. Prior to the use of software driven broadcasting and telecommunications systems, equipment was designed and manufactured using electronic circuitry otherwise mainly referred to as analogue systems.
- 3.4.2 However from the 1990s to present day a few technology trends which introduced quantum change to the domain of broadcasting, telecommunications and Information Technology (IT) are: solid state storage, compression technologies, embedded software and component miniaturisation, the Internet, operating system capability and fibre optic network connectivity.
- 3.4.3 Increased usage of digital systems in the design and manufacture of professional broadcasting and telecommunications systems brought about a fundamentally changed operational environment. In broadcasting, radio and television production and post-production systems underwent a complete overhaul as media took on a file based format and transformed the manner in which content was acquired, produced, stored and played out for transmission purposes. For telecommunications, networks offered more capacity, could be managed and configured remotely and the Internet Protocol (IP) protocol was introduced to carry traffic which did not require real time network response times. For broadcasting similarly it became possible to transmit more channels within the same bandwidth taken up by one analogue TV channel and this delivered spectrum efficiencies.
- 3.4.4 Later on and especially in the last decade, mobile telecommunications systems introduced a further aspect of convergence whereby fixed mobile convergence solutions became possible as fixed line network systems migrated to Next Generation Network capability at the core. It also became possible to deploy broadcasting and telecommunications systems together to offer bidirectional

interactive media products and services. Mobile broadcasting also became possible with advancements in orthogonal frequency division multiplexing introducing a robust method to transmit media whilst in motion.

3.4.5 The increasing use of IT based systems in broadcasting and telecommunications operations also carried through to changes on the business and consumer side. Smartphones and tablet devices offering increased capability to serve as both business tools and portable multimedia systems grew market share significantly in the last two years. With the functionality of computer based systems and network capabilities ever advancing, convergence is now starting to evolve to a completing different paradigm viz. where financial services e.g. banking may be conducted on non-smartphone mobile devices and mobile telecommunications based solutions are being adopted as tools of trade in healthcare and agriculture etc.

3.4.6 Thus convergence of technologies through the change to digital systems introduced change across the value chain of broadcasting, telecommunications and where different industries are now colliding in an intersection of IT systems and network connectivity.

### **3.5 Impact of convergence in broadcasting, telecommunications and postal services**

3.5.1 Through earlier policy intervention, the merging of the regulator in anticipation of a converged environment helped to a certain extent to deal with regulatory complexities. The issue of licences in distinct telecommunications, broadcasting and electronic media (e.g. broadband content) categories was becoming blurred and addressed at first via the Convergence Bill which subsequently became the Electronic Communications Act in order to address Section 192 of the Constitution. The ECA specifically caters for a converged telecoms,

broadcasting and information technology operations. In 2006, the Postal Regulator was incorporated into ICASA with the publishing of the ICASA Amendment Act No.3 of 2006. This was reflective of the growing requirement to provide policy direction and regulation to a fast converging ICT industry.

- 3.5.2 The ECA made significant progress towards a legislative framework to enable and promote convergence and technology-neutrality. The DoC released the Digital Broadcasting Migration Policy in 2008 and National Broadband Policy in 2010. In the future, policies in this area and more especially the interdependency between these policies and effecting regulation will be of paramount significance to guide an accelerated growth in broadband access.

### **3.6 Developments in postal services industry**

- 3.6.1 Following on the work of a specially appointed technical task team via a green paper led process to review postal services; a white paper on postal policy was developed in 1998. This provided a modernised framework for the postal services sector to provide relevant electronic services in the new millennium and subsequently led to the establishment of the SAPO via the amendment of the Post Office Act No. 44 of 1958. It is important to distinguish that not all parties providing postal and courier services in South Africa fall under the ambit of a regulated environment at this stage.
- 3.6.2 SAPO plays a key role in addressing and fulfilling universal service in the country with operations in small towns to large cities. Additionally, the plans to further transform SAPO through the corporatisation initiative as well as the application for a banking licence demonstrates an advanced and modernised policy construct. The banking licence will equip Postbank to provide banking services which will address the under banked and unbanked population in South Africa thereby integrating these segments into the economic mainstream.

### 3.7 Parallel timeline comparison view of global ICT developments

3.7.1 In the same timeline of the last decade to fifteen years, elsewhere in the world similar policy intervention was being applied to deregulate the telecommunications market as well as to cater for the impact of convergence and digitisation. There are multiple instances of incumbents privatising and transitioning to fixed mobile operators in a competitive marketplace. In particular, the European Union (EU) and International Telecommunication Union (ITU) were actively addressing the broadcasting and telecommunications sectors through policy and regulation dealing with convergence technology based solutions and services.

3.7.2 Figure 5 illustrates comparative policy and legislative milestones for developed countries as well as the events structured to deal with developing country groupings at a global level of agreement.

#### Parallel timeline view: South Africa – Global

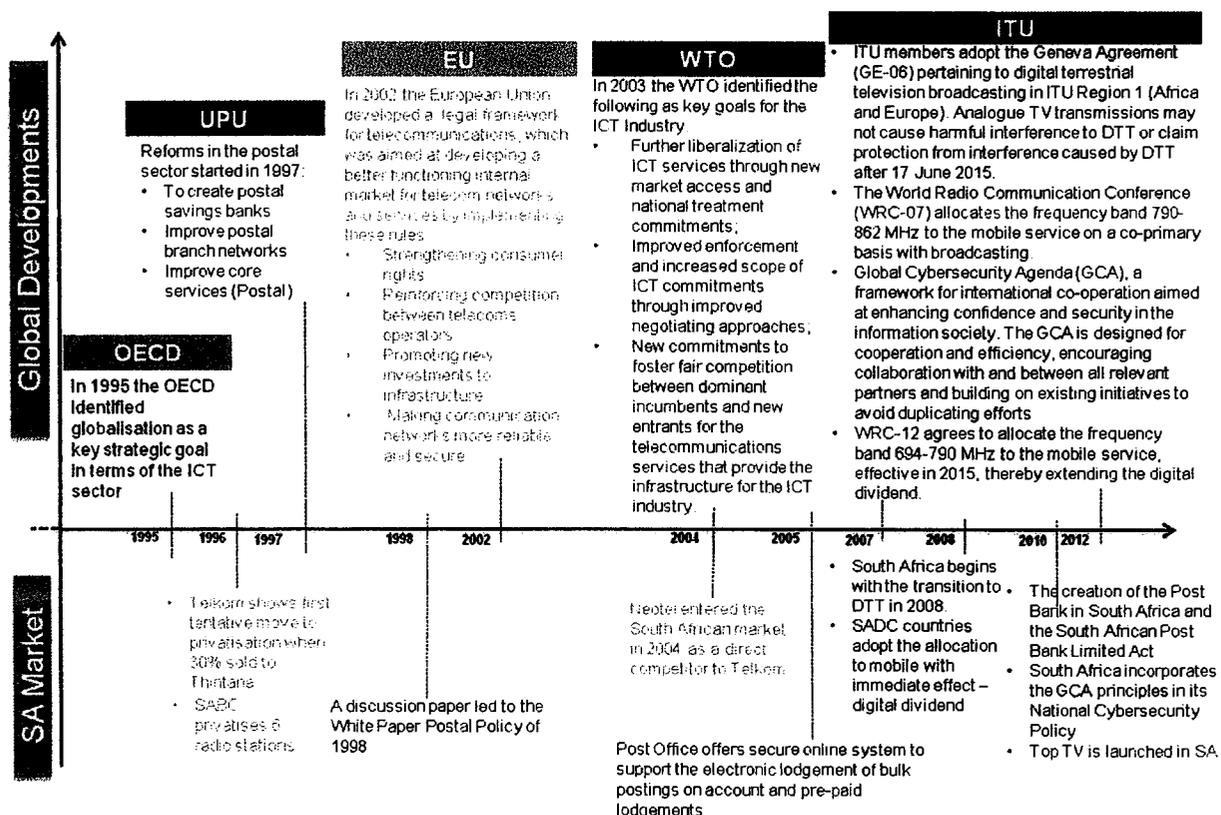


Figure 5: South Africa – Global, a parallel time view

3.7.3 It is also important to observe a growing focus on the implications of information confidentiality pertaining to consumers and in an ever increasing online world, the issue of cybersecurity also started to receive attention at a globally co-ordinated level.

3.7.4 South Africa is a signatory of the ITU Agreement (regional agreement on digital broadcasting Geneva Agreement - 2006 (GE-06)) focusing on the development of a frequency plan for digital broadcasting. In terms of this Agreement, analogue television transmissions shall not cause harmful interference to digital transmissions nor claim protection from harmful interference caused by digital transmissions after June 2015. Matters pertaining to spectrum will become a major focal point in shaping wireless broadband growth in South Africa. An economic perspective of the Digital Dividend is illustrated in Figure 6. As spectrum becomes available post the analogue switch off for broadcasting services, and together with frequency allocation in other frequency bands, the opportunity to establish and expand broadband services needs to be addressed as a priority.

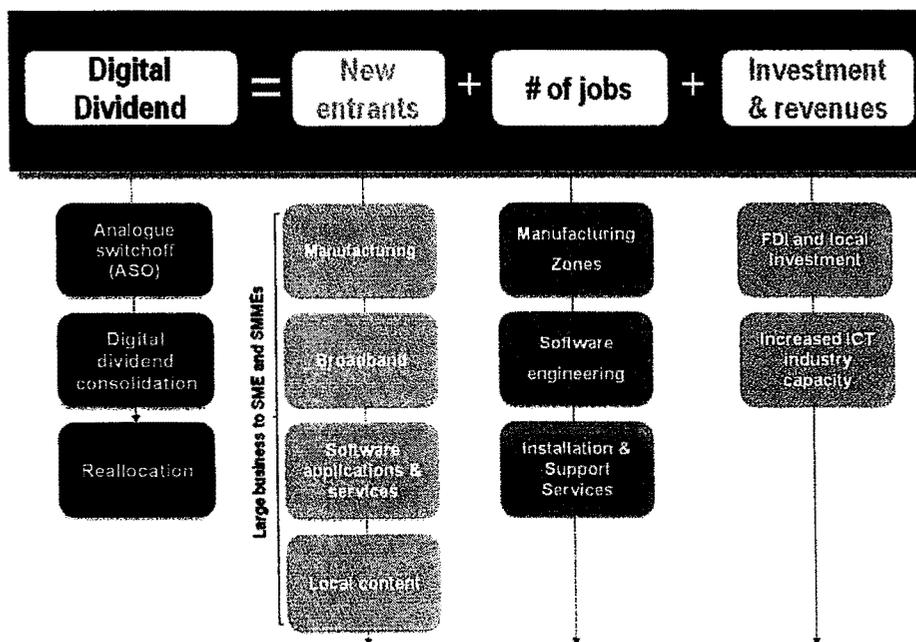


Figure 6: An economic driven perspective of the Digital Dividend

3.7.5 Radio Frequency Spectrum is a limited natural virtual resource, essential to the operation of many essential communication services in society. In March 2010, the South African National Spectrum Policy was approved by Cabinet.

3.7.6 The Minister of Communications is the custodian of the spectrum on behalf of the people of South Africa. Management of the radio-frequency spectrum is subject to Government authority and spectrum must be managed efficiently so as to be of greatest benefit to the entire population.

3.7.7 The objective of the spectrum policy is to ensure a co-ordinated national (and regional) approach to spectrum usage, set conditions for the availability and efficient use of radio spectrum by various services to support specific national objectives, and to establish the framework for the development of the national frequency plan. The Policy:

- provides guidance on issues related to the radio frequency spectrum and the establishment and review of the national frequency plan;
- establishes principles for spectrum management;
- contributes to the promotion of national interests within the framework of Government strategic objectives;
- provides for the allocation of spectrum for safety of life services;
- provides for the allocation of spectrum for government services; and
- provides for the allocation of spectrum for scientific research.

3.7.8 The global landscape in the mid 2000's was defined by the auctioning of spectrum to telecommunication players as well as the commencement of broadcasters migrating to digital broadcasting platforms thereby releasing additional spectrum for intended telecommunication-driven broadband expansion. Excessive prices paid for spectrum at these auctions constrained the rollout of the envisaged 3G services. No spectrum has been auctioned in South Africa to date.

3.7.9 Whilst South Africa's policy landscape during this timeframe shows a high congruence with global activities in multiple areas, at a local level the disconnect from the national ICT policy objectives post-apartheid started to become apparent. This disconnect had and continues to have a direct impact on the growth of the ICT industry including job creation, accelerated access and uptake of secure ICT services and skills development.

**3.8 South Africa at the ICT Crossroads**

3.8.1 The implementation of various policies, papers leading through to legislation and regulatory instruments yielded mixed successes. Accordingly, against a background of weakened international competitiveness in the South African ICT industry and a rapidly changing world of technology, the need to relook policy design and approach creates a significant decision making juncture for the DoC and users of ICT based solutions and services.

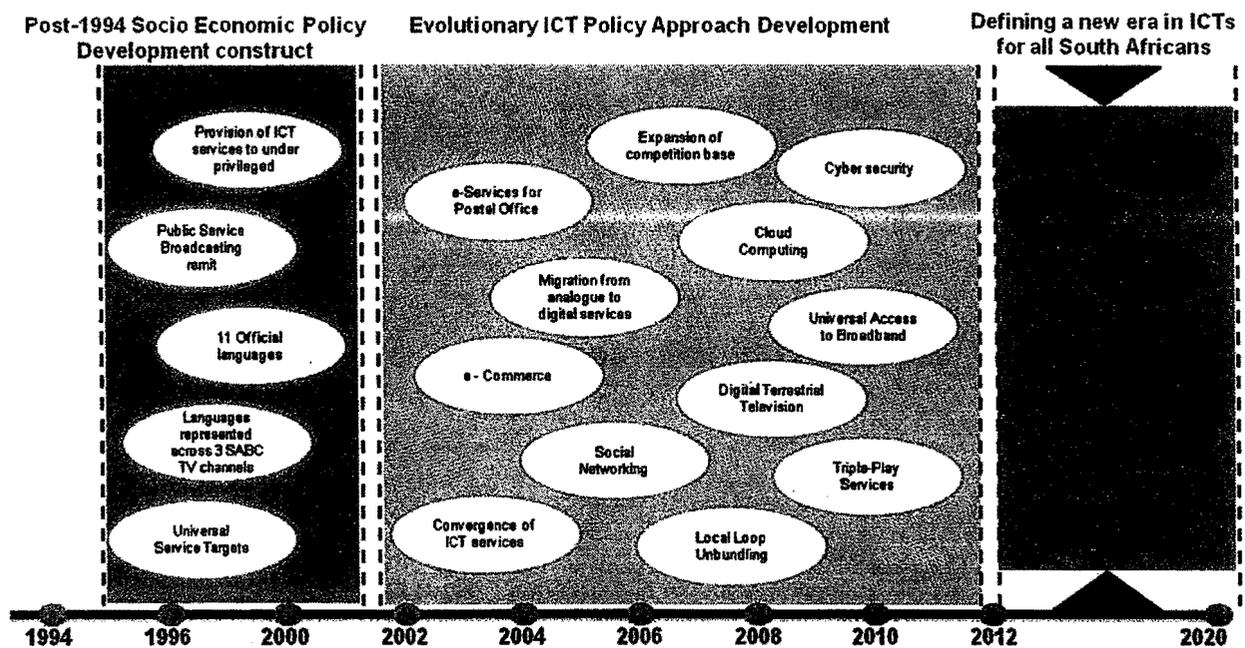


Figure 7: Entering into the new ICT policy era

3.8.2 The historical timeline view presented above in Figure 7 of the themed policy approach shows that much has been done to create a platform for economic stimulus, yet much more can be done and needs to be done. This is therefore a

critical juncture and one which provides a bold opportunity for the DoC to reassess its policy position in order to make strategic design intervention to introduce policy objectives which stimulate industry growth through increasing high quality, secure and affordable broadband services with a resultant increase in uptake of these solutions and services, creating jobs in the ICT industry as well as establishing a globally competitive ICT industry in South Africa.

### **3.9 The role of government in accelerating broadband growth**

3.9.1 Government investment into broadband networks in many countries including Australia, Malaysia, South Korea, Germany and the US have not only substantially increased public funding to invest in the building of national broadband networks but more significantly have done this because of a growing recognition that broadband is a form of national economic investment similar to building highways, hospitals and schools<sup>3</sup>.

3.9.2 Governments around the world have taken different approaches to broadband investment. Leading Organisation for Economic Development (OECD) countries with the highest access to broadband and uptake of services include Denmark, the Netherlands, Norway, Korea, Sweden and Finland with coherent national broadband strategies. Where the stance of governments in the US and UK were more of a distanced approach, this too changed as the UK issued the "Digital Britain" report and the US announced the development of a National Broadband plan shortly after falling from 2<sup>nd</sup> position to 15<sup>th</sup> position in the OECD broadband rankings<sup>4</sup>.

3.9.3 Policy makers globally are increasingly acknowledging and responding to action on the need to take ownership of national broadband strategy and investment. A national broadband network and connectivity is a strategic asset and must be viewed as a long term economic investment which is intrinsically linked to the

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<sup>3</sup> Digital Highways: The Role of Government In 21st-Century Infrastructure: Booz & Company

<sup>4</sup> Policy coherence for ICT in development: Tim Kelly, Victor Mulas, Siddhartha Raja et al

overall progress and growth of a nation. Policy makers should therefore not only play in the typical domain of licencing, market liberalisation and facilitating access to spectrum but rather take a leadership role in defining and implementing a National Broadband Plan the same as for the ownership of roads and rail infrastructure and services as provided for by the Ministry of Transport.

### **3.10 Future policy direction**

- 3.10.1 ICT policy and regulatory reform in South Africa coupled with an increase in competition and at times, regulatory intervention has meant that prices of some services have dropped and the quality of some services has improved providing benefit to certain customer segments only. In turn while this may have led to higher take-up of services and more Small Medium and Micro Enterprises (SMMEs) and entrepreneurs entering the sector, there is still a need to address affordability of telecommunications services to the greater market base.
- 3.10.2 There is evidence of lowering of regulatory barriers to entry including licensing through the conversion of Value Added Network Services (VANS) licences to ECNS and ECS licences, and the introduction of class licensing and licence exemptions. In line with broadcaster goals of using spectrum efficiently, measures are required to avail spectrum and infrastructure to the smaller players.
- 3.10.3 The SOCs established to fulfill universal service and other policy driven imperatives however in dealing with multiple challenges ranging from losing skills to commercial start-up companies in broadcasting and telecommunications and in the latter years becoming further encumbered through slow and ineffective decision making processes impeded overall progress in the ICT industry. This impacted negatively on the achievement against plans for digital migration, broadband, overall lowering of costs for telecommunications as well as universal access and universal service targets.

- 3.10.4 Moreover as a result of convergence and attempts to distinguish between infrastructure and service driven components there are examples where the mandate of state owned entities and state owned enterprises as well as universal service obligations attached to commercial ICT companies are either conflicting or showing duplication. Together with this, the independent regulator in the form of ICASA has been continually resource challenged to enable it to fulfill its intended purpose and now needs priority attention to refocus its role and to be given the requisite support to build capacity.
- 3.10.5 Whilst policy has been addressing technology, infrastructure and services from the multiple perspectives of convergence, wholesale, retail as well as from a market liberalisation perspective, what could be overlooked are other opportunities within the full value chain of broadcasting and especially telecommunications. As South Africa evolves towards a superdigitised market place, voice will continue to have a place and further market liberalisation opportunities may be contained within physical and virtual distribution of airtime and sales of goods and services online versus that directly linked to unbundling access to infrastructure or facilities leasing.
- 3.10.6 Similarly the various skills development programmes tend to appear scattered and need to be streamlined to provide ICT skills relevant to the requirements which fuel the growth of South Africa's ICT industry. Harmonising skills development to become a reliable feeder supply into the ICT industry pipeline will only partly address the skills requirement.
- 3.10.7 Thus ICT policy which was undoubtedly on par and even more advanced than some countries in Africa and other countries in the world started to lose focus on the developmental objectives both at a society and industry level in South Africa. Other tell-tale signs of this are in the form of South African ICT indices dropping where South Africa started to lose ranking position to Senegal and Egypt as

leaders in the rollout of ICT infrastructure<sup>5</sup>. Similarly South Africa lags significantly behind other (Brazil, Russia, India, China and South Africa) BRICS countries in multiple areas of the ICT value chain e.g., software development, ICT manufacturing and exports, research and development etc<sup>6</sup>.

3.10.8 To note as well and especially with comparison to BRICS peers, while the focus of policy in the last few years in South Africa has been highly cognisant of convergence based technology changes, the important linkages of these advancements particularly in the intersecting ICT areas of health, agriculture and banking were not given due attention from a strategic design perspective. A critique of the policy design and approach also shows a high broadcasting and telecommunications focus with unequal attention to ICT manufacturing and Information Technology as major drivers in the ICT industry eco-system. Similarly policy aimed at modernising SAPO and the Postbank show good intention but will not yield success if implementation is pedestrian.

3.10.9 It is time for the DoC to shift gear to move away from an evolutionary policy design which could relegate it to a facilitator stance towards that of taking leadership on a National integrated ICT policy which is underpinned by short and long term economic rationale.

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<sup>5</sup> World Economic Forum: Global Information Technology Report 2010-2011

<sup>6</sup> Gartner predicts 2012: emerging markets are changing the world of IT – November 2011

## **4. OVERVIEW OF THE BROADCASTING INDUSTRY**

### **4.1 High level overview**

- 4.1.1 Change in the broadcasting sector was mainly driven through policy and regulatory reforms in the early 1990's in the form of the IBA Act and the Triple Inquiry Report which was mandated to investigate the issues pertaining to the viability of the public broadcaster, limitations on cross-media control of private broadcasting services and the setting of minimum quotas for regarding local television content and South African music.
- 4.1.2 Areas which were not addressed in the scope of the inquiry were dealt with in the White Paper on Broadcasting of 1998 which later on informed the Broadcasting Act No.4 of 1999. The objectives of the policy process was to set up a broadcasting system that would serve to achieve public policy oriented goals such as universal service, diversity, nation building, education and strengthening the moral fibre of society. Additionally the paper looked at the various implications of convergence between broadcasting and telecommunications on public interest matters and also contemplated the complementary role the various participants in the regulatory space regarding policy making and the mandate of the regulator needed to fulfill. The results of these reforms led to the creation of a public broadcaster (SABC) with three television channels and 19 public sound broadcasting services.
- 4.1.3 Broadcasting is widely understood to be an important and wide-reaching tool with which to inform public opinion. The need to regulate broadcasting is paramount and in South Africa is enshrined in Section 192 of the Constitution. The introduction of a regulator, with constitutionally guaranteed independence, was a significant step forward for the country and industry.
- 4.1.4 In South Africa, broadcasting regulation originates from pre-democracy establishment of CODESA, a group of governmental, political and civil society

organisations which led to the establishment of the IBA in 1993. Broadcasting operations in a newly formed democracy were considered so critical that the IBA was not permitted to grant any new broadcasting licences until the finalisation of the Triple Inquiry Report.

- 4.1.5 The design construct of initial policy in broadcasting followed a clear rationale in that it specifically sought to address a number of factors facing a newly formed government in providing broadcasting services within a young democracy. The most significant objective of the act was to address past imbalances regarding universal access, plurality of information provided, the development of local content and skills development and transformation. The achievement of these objectives was reliant on the ability of creating drivers for change in the country.
- 4.1.6 Areas of investigation in the Triple Inquiry Report were later on expanded upon in the White Paper on Broadcasting in 1998 which sought to address specific policy driven objectives which the IBA did not set out. The lack of policy in between the CODESA driven process, the establishment of the IBA and the Broadcasting Act created a vacuum and also made the point of the significant role policy plays in providing strategic guidance to key institutions as well as the industry at large.
- 4.1.7 A significant aspect of the White Paper was the call for regulatory and policy alignment and complementarities between telecommunication and broadcasting in South Africa. It also set forth a strong policy position that regardless of the tier of broadcasting model, namely public, commercial or community broadcasting, South Africa's broadcasting system should operate primarily in the public interest and thereby be supportive of delivering universal service objectives, educational objectives and nation building content through the democratisation of the airwaves. Chapter one of the White Paper on broadcasting policy specifically provided for the formulation of new broadcasting legislation to guide national broadcasting operations in the newly founded democracy in South Africa.

- 4.1.8 This in turn led to the promulgation of the Broadcasting Act No. 4 of 1999 which followed a clear rationale in that it specifically sought to address a number of factors facing the government in providing broadcasting services within a young democracy. The most significant objective of the Act was to address past imbalances regarding universal access, plurality of information provided and the development of local content.
- 4.1.9 The IBA merged with the SATRA to form ICASA in July 2000. ICASA was constituted under the ICASA Act of 2000 to regulate telecommunications and broadcasting.
- 4.1.10 On 17 March 2003, the Broadcasting Amendment Act No. 64 of 2002 was promulgated. At this point, the operating framework for satellite and subscription broadcasters was still not settled, although various entities had already begun to transmit broadcast content using satellite technologies as early as 1996. This amendment effected changes in relation to the application of certain sections to "broadcasting services carrying more than one channel" otherwise known as multi-channel broadcasters.
- 4.1.11 In November 2010, the Minister of Communications called for a Broadcasting Policy review process. This policy review process which included a due diligence analysis on the White Paper on Broadcasting of 1998 also called for a review of funding options for the SABC and community radio. The Minister furthermore asked for an economic modeling exercise to be undertaken to determine projected costs linked to the upcoming digital migration. The Minister subsequently withdrew the Public Service Broadcasting Bill.

This marked a significant point in the broadcasting policy landscape whereby the policy review was assessing funding and sustainability of the SABC to fulfill its public service broadcasting remit as well as a due diligence exercise to determine performance against original policy intentions.

4.1.12 The Broadcasting Digital Migration Policy which was approved by Cabinet in 2008 set out the parameters for migrating the country's broadcasting from analogue to digital. The policy called for the establishment of Digital Content Generation Hubs (DCGHs) aimed at generating local digital content together with a special skills development programme. Aside from citing the benefit of upgrading aging broadcasting infrastructure, other key benefits included;

- the potential of a multiple channel broadcasting capability to enhance the diversity of broadcast content
- provide for access to broadcasting services to people with disabilities
- the ability to provide e-government services to be seen as a fulfillment of government's contract with citizens relating to the provision of services
- creating jobs through local manufacture of Set Top Boxes (STBs) and which would reinvigorate the country's electronic industry

To aid with implementation of the migration, the policy provided for the establishment of the Digital Dzonga consisting of representatives from the public, government, industry, organised labour and consumer groups. The broadcasting Digital Migration Policy was subsequently amended during February 2012.

## **4.2 Public service broadcasting**

### **4.2.1 SABC**

The SABC was relicensed in June 2005 and in line with Section 10 of the Broadcasting Act, the new licenses reflected a reorganisation of the corporation along the lines of a commercial and a public services broadcaster which was previously created via the Broadcasting Act of 1999.

As one of the first goals to create a national public broadcaster, the SABC had to integrate the former TVBC state broadcasting operations including the assets to

transmit broadcasting services in the 11 official languages across the nine provinces of the newly formed country. The Former States Broadcasting Reorganisation Act No. 91 of 1996 provided for this.

The SABC's mandate, which is to inform, educate and entertain viewers and listeners, has been guided to date by the following principles:

- The requirement that broadcasting services, viewed collectively, develop and protect national and regional identity, culture and character
- The obligation of the SABC to take into account the needs of its audiences
- The requirement that the SABC display South African talent
- The requirement that the SABC reflect South African attitudes, opinions, ideas, values and artistic creativity
- The requirement that the SABC offer a plurality of views and a variety of news, analysis and information from a South African point of view
- The need to support the production of local content by South Africans; particularly by historically disadvantaged people
- The specific quotas set by ICASA for local television content, independent production and South African music on the SABC's public and commercial services.

#### 4.2.2 NEMISA

To fulfill the policy objectives pertaining to capacity building, the DoC established NEMISA, a media institute which specialised in teaching broadcasting production skills to the previously disadvantaged grouping and more especially to women. This provided a good feeder system of skills into the SABC and the wider broadcast industry. In preparation for the 2010 FIFA World Cup, the SABC and Sony partnered with NEMISA in the design and launch of high definition TV camera training courses to the local industry.

#### 4.2.3 MDDA

In support of the need to develop content to serve the multiple needs of a developing democracy in South Africa, the Media Development and Diversity Agency (MDDA) was set up by an Act of Parliament Act No. 14 of 2002. The MDDA's primary task is to address solutions which enable HDI communities not adequately served by mainstream media to gain access to the media. This includes the development of skills capacity especially amongst the HDI grouping.

### 4.3 Commercial broadcasters

#### 4.3.1 MNET, Multichoice and the Naspers Group

Naspers Ltd is a multinational media company with principal operations in pay TV, social media, mobile broadcasting and the Internet. The Electronic Media Network Ltd. was launched in 1985 as South Africa's first private subscription television service under the auspices of the Naspers Group (MNET). Multichoice was created in 1993 as a subsidiary group and expanded with its launch of South Africa's first digital satellite service in 1995 called DStv. At the time no specific formal regulatory framework existed for satellite or other forms of subscription broadcasters existed.

#### 4.3.2 eTV

eTV was South Africa's first national private free to air television channel launched in October 1998. Since launch, eTV has grown and expanded operations to include a 24 hour news service and has successfully managed to achieve a financial break-even as early as 2004. eTV has expanded its media footprint into Africa and has also started to vertically integrate through the acquisition of key strategic production assets to bolster its content strategy.

#### 4.3.3 TopTV

TopTV is the newest addition to the South African satellite subscription broadcasting TV market. The company commenced broadcasting in 2010 after

being granted a license by ICASA late 2007. TopTV is owned by On Digital Media and offers a wide bouquet of television channels.

#### 4.3.4 Other

There are a number of other players who also share significant influence and ownership in the broadcasting and electronic media sector. Kagiso Media is a black-owned and managed investment holding company with radio station media assets. Kagiso is also a stakeholder in commercial television productions e.g. YO-TV, 3 Talk and Soweto Community Television. Primedia is a South African media group that was established in 1994 and its listing on the Johannesburg Stock Exchange (JSE) was completed in April 1995. Primedia is broadcasting and advertising company with more than 50 brands in the sector.

African Media Entertainment Ltd (AME) is a broadcast company listed in the "Media and Entertainment" sector of the JSE Securities Exchange South Africa and owns four active broadcast media assets. CNBC Africa has operations in South Africa with substantial live production and post-production facilities producing local content, whereas the likes of the BBC and CNN have news bureau operations contributing news into the global channels.

In 2007, ICASA awarded licenses to four subscription television broadcasting licensees – Walking on Water (a dedicated Christian service), On Digital Media (TOP TV), e-Sat (a satellite service from e.tv) and Telkom Media (a broad spectrum multi-channel subscription and internet protocol TV service). Multichoice Africa was also granted a licence. A high level review indicates the difficulty some of the licencees faced to get to market and this is also indicative of a highly competitive market with strong market dominance through market share and other contributing factors. Going forward, the migration to digital television broadcasting will present further policy opportunities to address the growth and sustainability of sound, TV and multimedia services.

#### **4.4 Community Broadcasting**

The definition of community broadcasting is embodied within the statement “for the community, by the community, through the community” made in the Broadcasting White Paper of 1998. The IBA Act of 1993 allowed for the inclusion of community broadcasting as one of the three tiers of broadcasting. Subsequently 85 community radio licenses were issued between 1994 and 1998 and a few TV community broadcasters were licenced and are operating. The White Paper on broadcasting emphasised the important role community broadcasters could play in binding communities and catering for diversity. The White Paper additionally set out the provision of a distinct broadcasting mandate dealing specifically with community broadcasting issues as well as dealt with regulatory issues such as frequency, transmission fees and training programmes.

#### **4.5 Signal Distribution**

##### **4.5.1 SENTECH**

When Sentech was separated via the Sentech Act No. 63 of 1996 from the SABC, it became by default the largest signal distributor of radio and television services in the country. Given the critical nature of signal distribution operations, selected units of Sentech are classified and protected within the National Key Point (strategic installations) Act.

Sentech will provide the DVB-T2 multiplexor (MUX) services for terrestrial digital broadcasting services in South Africa. The Broadcasting Digital Migration Policy made reference to this within the ambit of the Broadcasting Act and also factored in that in terms of the ECA, broadcasters may self-provide.

It is important to recognise the advantages offered via consolidated MUX operations with properly designed and operated head end systems whereby the ability to self –provide can offset technical and cost advantages of operating multiple channels provided by different broadcasters and media sources.

#### 4.5.2 ORBICOM

Orbicom is a privately owned company and after a change in ownership is now 100% owned by Multichoice<sup>7</sup>. Its core business over the years has been in providing satellite and terrestrial signal distribution services including conditional access solutions.

#### 4.6 Future policy direction

4.6.1 Multiple achievements are evident in the broadcasting industry in South Africa and where there is a clear connect to a policy driven intervention. Transformation in public service broadcasting is evident in the range of content broadcast in the official languages as well as the increased transmitter footprint.

4.6.2 Economic transformation together with market liberalisation goals has led to a viable commercial broadcasting sector in the country and where some of these broadcasters and media companies successfully used South Africa as a launch pad to expand services into Africa and elsewhere in the world.

4.6.3 However, the larger media and ICT industry faces numerous challenges pertaining to broadcasting:

- Sustained growth in local content and TV production industry
- Meeting market demand for technical and engineering skills for specific broadcast operations
- Migration to digital broadcasting and subsequent harnessing of spectrum to increase broadband footprint
- Ability to attract, retain, and develop skills at both the DoC and ICASA to address the on-going capacity challenges
- Robust governance across regulator and SOCs.

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<sup>7</sup> Multichoice Annual Report 2011

- 4.6.4 It becomes clear that with the anticipated on-going evolution of technologies, new priorities have emerged which created policy challenges both at a design and implementation level. Digital migration presents a fresh opportunity for South Africa to develop policy which directs the overall growth of the broadcasting industry whilst providing for broadband opportunities which will increase as a result of the analogue broadcasting switch off. Digital broadcasting also presents an ideal opportunity to address other gaps and barriers that have prevented the realisation of some of the important skills goals and the expansion of new content services.
- 4.6.5 Digital broadcasting also provides an opportunity for community broadcasters to gain access to highly localised regional coverage. The role of the MDDA and USAASA become paramount in addressing the dual needs of diversity and universal access coverage to serve community broadcasting effectively.
- 4.6.6 More importantly this juncture also provides an opportunity to assess the role of the regulator and to provide the requisite support and enablement required so that the regulator in fulfilling its role helps accelerate the development of the ICT industry in South Africa.

**Recommended areas for discussion**

- Local content production
- Migration to digital broadcasting
- The provision of e-Government services enabled via digital broadcasting technology systems
- Cross-media ownership within a digital broadcasting and broadband operating context
- Viability of the current public broadcasting system with specific reference to funding
- Viability of community radio and TV

**Recommended discussion questions**

1. What is the role of the regulator in a digital broadcasting and broadband domain?
2. How can South Africa harmonise the National Broadband Plan with the Broadcasting Digital Migration Plan?
3. Is there a future for mobile broadcasting in South Africa?
4. Is there still a need to address universal service and universal access in the digital broadcasting domain and how should revised targets be set?
5. What opportunities does digital broadcasting present to address regional needs, in particular to extend content for minority languages, youth, gender and children?

## **5. OVERVIEW OF THE TELECOMMUNICATIONS INDUSTRY**

### **5.1 High level overview**

- 5.1.1 The telecommunications industry post-1994 was characterised by a macro-economic environment driven by significant change which affected the role and position of the entire telecommunications sector in South Africa. With regards to technology, similar changes were taking place elsewhere in the world and saw major shifts in market consolidation and global mobility of customers. This pressured a dynamic design approach to policy and in the case for South Africa was in addition to the need to deal with changes in the new political dispensation.
- 5.1.2 In line with the needs of the time, the then Ministry for Posts, Telecommunications and Broadcasting, commenced on a new policy development in South Africa whereby a process of consultation was launched via a Green Paper on Telecommunications Policy. Contributions gathered through the Green Paper process led to the publishing of the White Paper on Telecommunications Policy in 1996.
- 5.1.3 This White Paper sought to address a number of issues such as universal service, market structure and the need for an independent regulator. Understandably, given the disparities in South Africa, a special focus was granted to the issue of universal service. An inequitable access to telecommunications infrastructure and services co-existed alongside a highly developed communications technology system posing unique challenges to South Africa and which had a direct bearing on the economy.
- 5.1.4 To address the imbalances, access for persons from historically disadvantaged communities and rural areas were identified as key focus areas. Thus two mechanisms were developed via the establishment of an Independent Regulator as well as the creation of the universal services fund (which would be managed

by Universal Services Agency) to address the imperatives of connectivity and services to these identified groups.

- 5.1.5 Market liberalisation was also a major policy focal point and many steps were taken with direct bearing on the fixed line incumbent at the time. To address the issue of market structure it was decided that Telkom would be granted a four year period of exclusivity for providing basic public switched telecommunications services. At the beginning of year four, resale would be permitted in order to encourage new and innovative use of the telecommunications infrastructure.

During that period of exclusivity, certain market segments would be open to competition, viz., the Customer Premises Equipment (CPE), private network and VANS segments. In terms of the White Paper, the resale of telecommunication facilities leased from Telkom by private and VANS operators was going to be allowed at the beginning of year four of the period of exclusivity, which was May 2001.

Furthermore, at the beginning of year six of Telkom's exclusivity period, it was envisaged that the following additional market segments would be opened up for competition: local loops, public payphones, and national long-distance and metropolitan area networks. It was also envisaged at the time that a second full network services operator would be licensed in 2001 to compete with Telkom.

Government subsequently sold a 30% stake in Telkom to Thintana, a consortium comprising US based SBC Communications and Telekom Malaysia in 1997 and Thintana sold this stake to institutional investors in 2004.

- 5.1.6 These policy objectives were incorporated into the Telecommunications Act No. 103 of 1996. The primary objective of the Act correlated to the policy goals set out in the White Paper. It saw the establishment of SATRA which served as the independent regulator in the telecommunications sector and the USA to manage

and administer the universal service fund. Amendments in the Telecommunications Act also led to Sentech being awarded with a licence to provide international telecommunications gateway services and multimedia services from 7 May 2002.

- 5.1.7 Convergence was recognised and acknowledged as a future environment in both the White Paper on Telecommunications Policy of 1996 and the White Paper on Broadcasting Policy of 1998. A significant development in the telecommunications sector therefore was when the IBA and SATRA merged together to form ICASA. This was imposed by legislation under the Independent Communications Authority of South Africa Act No. 3 of 2000. Part of the rationale for this was the increasing convergence of technology and the distorting of lines between the two sectors thereby seeking to provide seamless regulation in a converged telecommunications and broadcasting environment.
- 5.1.8 Technology changes driving this convergence within telecommunications was in the form of digital technology and the ability to 'soft configure' capacity and routing and where the technology was evolving towards full fixed-mobile convergence with implications for spectrum. On the broadcasting side and more especially globally, a driver was digital broadcasting which was still at an early stage of development. However changes were in the form of electronic media distribution capability using telecommunications infrastructure e.g. Internet Protocol Television (IPTV), Video on Demand (VOD) etc.
- 5.1.9 The aspect of technology convergence was again raised in the Green Paper on e-commerce in 2000. It stated, inter alia with the convergence on Broadcasting, Telecommunications and Information Technologies, the infrastructure capable of supporting e-commerce had become almost ubiquitous in developed countries. Convergence also found some recognition in the 2001 amendments to the Telecommunications Act No. 81 in particular through the addition of section 32C of the Act regarding multimedia services.

5.1.10 To effectively deal with all known and quantified aspects of convergence at the time, a layered approach to licensing via the Electronic Communications Act No.36 of 2005 was promulgated. The convergence between telecommunications and broadcasting introduced the combination of individual licenses into two main overarching licenses. These licenses are the Individual Electronic Communication Network Services License (I-ECNS) and the Individual Electronic Communication Services License (I-ECS).

5.1.11 An event in August 2008 which set a precedent in the converged telecoms environment came about when Altech Autopage Cellular challenged the right to self provide. Altech served a High Court order on ICASA objecting to the process of VANS licence conversion and selection of intended network services licencees and the Pretoria High Court awarded the decision in Altech's favour. ICASA was then obliged to allow Altech to convert its VANS licence to an I-ECNS licence.

5.1.12 Effectively, South Africa has some 500 licencees who in terms of the ECA may provide infrastructure and services. Areas pertaining to broadband and spectrum were addressed in 2010 with the publishing of the Cabinet approved Broadband Policy for South Africa as well as the National Radio Frequency Spectrum Policy. The objective of the spectrum policy was to address spectrum management, provide guidelines for spectrum usage as well as principles for spectrum fees.

## **5.2 Telecommunications - SOCs and Agencies**

5.2.1 The DoC has been primarily responsible for guiding the development of the telecommunications sector and ensuring that it meets the industry needs of South Africa. This included setting targets for universal service and universal access for voice and data (including broadband services) for telecommunications operators and service providers.

5.2.2 With the imminent implementation of digital broadcasting services and the need for broadband infrastructure development, the DoC is well cognisant of industry's needs and has accordingly developed a Broadband Plan to address the new environment. With technology convergence becoming applicable across the value chain of telco and media companies, Sentech which at first was mandated to provide signal distribution for the SABC together with other market services has also been awarded various telco based licences and provisions over the years. Like for most of its global peer group around the world, this is the trajectory that was followed for signal distribution companies.

5.2.3 However, the DoC's span of responsibilities for telecommunications is confined to organisations reporting into the DoC. Information on agencies reporting into the DoC together with other relevant SOCS falling within other government reporting structures follows and dealing with large scale telecommunications infrastructure and services follow.

5.2.3.1 USAASA: With the publishing of the Electronic Communications Act No. 36 of 2005, the Universal Service Agency (USA) was renamed the Universal Service and Access Agency of South Africa (USAASA). A driver for the change was the inclusion of universal access as a priority for addressing integration of all socio economic groups across South Africa.

The ECA provides that money in this fund be exclusively used for assistance to 'needy persons' and the financing or construction of electronic communications networks in under-served areas thereby catering for the attainment of universal service and access targets especially in rural or underserved areas. Additionally funding is also available to public schools and further education institutions to procure telecommunications products and services.

5.2.3.2 Sentech was created by statute and took over through issue of a loan, the SABC's signal distribution assets, becoming the largest (and at that time, the only) signal distribution operator in South Africa. Sentech was separated out of the SABC in 1996 via the publishing of the Sentech Act No.63 of 1996. Sentech's influence in the telecommunications sector came to the fore in 2002 when it was awarded two additional licenses for the provision of international voice-based telecommunications (carrier of carriers licence) and media services (multimedia licence).

These strategic licenses were enabled by the Telecommunications Amendment Act No.64 of 2001. With the publishing of the ECA in 2005, these licenses were subsequently converted into I-ECNS and I-ECS licences. Sentech has also since been awarded with a multimedia licence.

5.2.3.3 Outside of the DoC and reporting into the DPE, Broadband Infraco was licensed following legislative intervention in 2006 by the DPE to specifically operate a backbone (broadband) network and to provide network services to operators at wholesale prices and on "open access" (non-discriminatory) terms. Broadband Infraco is prohibited from dealing directly with retailers or the public. Together with Sentech, Broadband Infraco will also play a major role in accelerating broadband in South Africa. However both entities may not be optimally structured in their present format to deliver efficiently and optimise investment spend into this infrastructure heavy project.

5.2.3.4 Outside of the DoC and reporting into the DPSA, SITA has a mandate to consolidate and coordinate the government's information technology resources in order to achieve cost savings

through scale, increase delivery capabilities and enhance interoperability. With the envisaged growth of IT featuring as a key toolset in organisations towards the new millennium, the need at the time became apparent in the South African government context to establish a central authority charged with the coordination of all governmental IT services and infrastructure. This gave rise to the State Information Technology Agency (SITA) Act No.88 of 1998 being published and SITA being subsequently established in the following year.

SITA's primary objective is to leverage IT as a strategic resource for government, managing the IT procurement and delivery process to ensure that the government gets value for money, and uses IT to support the delivery of e-Government services to citizens.

### **5.3 Telecommunications – Commercial Companies**

**5.3.1 Telkom:** Telkom, as the former parastatal national operator, has the most extensive fixed line telecommunications network and provides connectivity, voice, data and broadband products and services to a business and consumer customer base. Following on the approval of the Telecommunications Amendment Act in 2001, Telkom prepared for an Initial Public Offering (IPO). Telkom eventually listed on the JSE and New York Stock Exchange (NYSE in 2003) and government currently retains a 39, 8% share. Telkom divested its 50% stake in Vodacom in 2008. Through a managed liberalisation process, Telkom's exclusivity came to an end in 2002.

Whilst Telkom still dominates the fixed line voice telephony market because of its extensive copper access network infrastructure across South Africa, fixed line growth has been in decline over the recent years<sup>8</sup>. Also since market liberalisation, which was initiated by the Telecommunications Act No.103 of 1996,

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<sup>8</sup> Telkom annual report 2011

Telkom continues to face increasing competition from mobile operators and competitors offering convergence based business solutions. As the national incumbent, Telkom can still play a major role to increase the access of broadband services to a wider reach of consumer and business clients across South Africa.

5.3.2 Neotel: After a significant delay as per original planned date, Neotel received a licence in 2005 and after further delays in getting to market, only launched consumer based residential products and services in 2008. Neotel entered the market as the second national network operator with a significant part of its asset base derived from Transtel assets. Neotel now covers 2.5 million households. Its current products and service offerings for voice and data services are designed to meet market demand. Neotel has a retail footprint and have plans to expand channel to market capacity. It also offers products to the corporate business segment as well where over 90% of its revenues are generated from the business customer base. Neotel also operates the SEACOM submarine fibre cable landing station.

### 5.3.3 Mobile Network Operators (MNO) and Mobile Virtual Network Operators (MVNOs)

There are four mobile cellular network operators in South Africa, Vodacom, MTN, Cell C and 8ta. Vodacom and MTN launched GSM based mobile services in 1994. Cell C was awarded a licence in 2001 and VANS operators now operate under the ambit of the ECNS layered licensing framework endorsed by the ECA and ICASA. The MNOs initially started with prepaid and postpaid voice based services and over the years have expanded services to provide data services to the consumer and business segments for both postpaid and prepaid customers.

South Africa has only one MVNO in the market. Virgin Mobile South Africa was the first MVNO to enter the market in partnership with Cell C in 2006. Following

a change in ownership structure and a rebranding exercise, Cell C launched the new MVNO entity Red Bull Mobile service in 2011.

#### 5.3.4 Other

The advent of market liberalisation has seen the rapid expansion of the Internet Service Providers (ISPs) in South Africa. The Internet Service Providers Association (ISPA) currently has 152 listed members ranging from large/medium to small players<sup>9</sup>. This influx can be attributed to the converged licensing regime implemented with the publishing of the ECA in 2005. This has caused the licensing of hundreds of companies offering Internet Services. Coupled to this is the expansion of infrastructure with the arrival of four new international submarine fibre-optic cables (e.g. SEACOM, EASSy, WACS). A consequence of this has been a reduction of international bandwidth cost and the expansion of the competition base.

#### 5.3.5 Summary observations – commercial companies

Whilst the voice market has become saturated, there is still headroom for data growth in South Africa. The prepaid market in South Africa is very price savvy and there is a tendency to carry multiple SIMs to enjoy pricing benefit depending on prepaid promotions and offers by the MNOs. An ICT Africa household survey indicated a SIM-card penetration rate of close to 65% of the population, with at least 10% of respondents indicating they had multiple SIM cards. Recently, there has been a rapid growth in smartphone usage and penetration has risen from 17% (2011) to 23.7% (2012)<sup>10</sup>. Thus it is not straightforward to correlate SIM cards issued with mobile penetration on a linear basis. Additionally SIM cards are also in use in machine to machine telemetry applications. It is also reported that 85% of black owned businesses in South Africa depend on mobile telephony<sup>11</sup>. Whilst it is reported that the mobile subscriber base in South Africa

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<sup>9</sup> ISPA member list. Available at <http://ispa.org.za>

<sup>10</sup> Steve Esselaar, et al. (2010). South African ICT Sector Performance Review 2009/2010

<sup>11</sup> Paul Budde Communication Ltd 2012; South Africa key statistics – telecom market and regulatory overviews

is saturated, this tends to be a metro centric assessment and rural and under-serviced communities are not always factored in.

## 5.4 Future policy direction

5.4.1 Policies developed have significantly shaped the telecommunications industry through the advancement of key objectives such as universal access, infrastructure development and market liberalisation. Market liberalisation has received the most focus in terms of investment and market growth with many positive and some negative connotations.

The regulatory framework also enabled the growth of alternative service providers such as Dark Fibre Africa (DFA), Fibreco, Broadband Infracore, and even the launch of Telkom's mobile arm, 8ta. The number of broadband capacity providers has increased in number thereby promising a future potential of a vast array of fixed and wireless broadband services. International connectivity which also had a positive influence on future capacity supply and forecasted price decline<sup>12</sup> include the subsea cable connectivity via EASSy, SEACOM and WACS.

5.4.2 Despite significant success in the sector there is room for improvement to increase teledensity, overall access, affordability and in the main uptake of ICT services. A before and after assessment demonstrates many aspects of visible change since the introduction of mobile operators, Neotel and the entry of ECNS players, however price<sup>13</sup> and accessibility of services continues to dominate user needs. Fixed line density is 8% and Telkom continues to report negative fixed line growth.<sup>14</sup>

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<sup>12</sup> The end of Telkom's monopoly on international submarine fibre-optic cables also led to a decrease in price

<sup>13</sup> Telecommunications prices in South Africa, South African Foundation Occasional Paper No1/2005

<sup>14</sup> Telkom annual report 2011

- 5.4.3 One of the most significant challenges going forward is the development of infrastructure in previously disadvantaged and rural areas. The access, usage and uptake can only be addressed if citizens across all socio economic demographics have infrastructure and affordable services in their area.
- 5.4.4 Historically Disadvantaged Individuals (HDI) remain under represented in the industry as both suppliers and users of ICT services. This is due to targets of universal access not being fully implemented. The establishment of the Universal Service Fund (USF) and USAASA as the manager thereof was aimed at addressing this problem but had not yet yielded wide spread success.
- 5.4.5 The operating mandates of Broadband Infraco and Sentech together with the obligations placed on the incumbent also appear to be a multi-pronged approach to implementing a national broadband system. This intersection and near conflict in roles does not appear to be adequately identified or addressed in the current policy document. Within new policy development, attention therefore needs to be given to the role of Broadband Infraco, Sentech, SITA, the USAASA and other SOCs and Telkom obligations regarding the objectives set out by government on universal access, infrastructure development, funding and the development of relevant skills.
- 5.4.6 Within telcos but more specifically dealing with radio, a positive achievement has been the launch of the SumbandilaSat satellite designed and built in South Africa to showcase local capabilities. Coupled with this the South African National Space Agency also recently launched a National Space Strategy. The ISSA played an integral role in the development of skills needed for the advancement of South Africa's space program. The success of the project showed the capabilities of South Africa to produce advanced technology at a significantly cheaper cost than comparing nations. However, going forward a more streamlined approach should be taken to develop ICT skills in South Africa as this will have a direct bearing on the current and forecasted skills shortage.

- 5.4.7 The ICT Empowerment Charter has led to many progressive transformation based changes but transformation objectives as per the seven pillars defined within the Preferential Procurement Framework Policy Act No. 5 of 2000 still need to be addressed in the ICT industry in South Africa.
- 5.4.8 The price of telecommunications products and services is still a barrier for many South African consumers and there is room to also improve on communications to consumers and users of the benefits of ICT.
- 5.4.9 Overall, the developments in the telecommunications sector have mostly led to a positive market impact in South Africa, generating investment, innovation, employment and selected improvements in service delivery.
- 5.4.10 Broadband is going to be the next major area of investment requiring public-private partnering, inter-governmental partnering and addressing consolidation of government mandate and assets. A National Broadband network which is built to transform the economy of South Africa brought about by socio-economic change is undoubtedly one of the largest telecommunications based projects to be undertaken in the country. An effectively built and operated national broadband network will serve as the central nervous system in the country connecting schools, hospitals and various economic corridors in the country. Such a network will in addition to other media communication systems provide a vital communication component between government and citizens.

In keeping therefore, policy makers should not just approach this area from a market structure model perspective but view its role more critically. A national broadband network is equivalent to a strategic national asset delivering medium to long term economic benefit whilst providing vital connectivity functionality and

services in the country and should therefore be accorded priority focus in the development of policy.<sup>15</sup>

#### Recommended areas for discussion

- Investment in infrastructure to promote universal access and service
- Cost of services and the impact on affordability
- Supply of skills and the role of training institutions in creating appropriately qualified skills for the sector
- Employment in the sector
- Effective market structure for delivery of broadband
- Transformation in the ICT industry – (i) policy measures in growing sector, (ii) factoring in ICT Charter and (iii) preferential procurement

#### Recommended discussion questions

- How can policy/ regulation drive infrastructure investment by the private sector?
- How do you drive investment in under-served areas?
- Technology neutral last mile technologies viz., LLU is still an issue, does it remain a relevant issue going forward into the broadband era?
- What other parts of the telco value chain can be 'opened up' to allow for SME and SMME partnering e.g. sales and distribution of air time?
- what is the relevance of open access networks for the South African market?

<sup>15</sup> In the case of Australia, the direct contribution of the internet to the Australian economy was worth approx \$50 billion or 3.6% of Australia's Gross Domestic Product (GDP) in 2010. The Australian government took direct leadership responsibility in the National Broadband Network (NBN) project on all aspects ranging from funding through to skills development of the NBN future workforce.

## 6. OVERVIEW OF POSTAL SERVICES INDUSTRY

### 6.1 High level overview

- 6.1.1 Postal services is defined as the receiving, collecting, dispatching, conveying and delivering of mail or postal items, as well as performing all services incidental to these primary tasks. In South Africa the structure of the postal market is divided into reserved and unreserved postal services, with only one company being permitted to operate in the restricted area of reserved postal services. This concept of an exclusive area for postal providers is built on the basis of universal service obligations, a responsibility which must be provided by the SAPO. Certain postal items up to a certain weight are currently in the exclusive domain of SAPO, a company wholly owned by the South African government.
- 6.1.2 The creation of a universal service obligation came about through the 1998 White paper on Postal Policy when it was stated that a license will be issued by the then Minister for Posts, Telecommunications and Broadcasting to the monopoly provider (SAPO) in terms of which a Universal Service Obligation would be imposed. SAPO was established as a monopoly provider for post less than 1kg and this coincided with the creation of the Postal Regulator under the Postal Services Act No. 124 of 1998.
- 6.1.3 Whilst reserved postal services are exclusively supplied by SAPO, unreserved postal services are also supplied by privately owned courier companies. The unreserved postal services area is harshly competitive for SAPO. In attempts to modernise its operations, products and services, SAPO is increasingly exploring other market avenues to diversify its solutions and service offerings. In the General Agreement on Trade in Services (GATS) sectoral classification, postal and courier services is listed as subsectors of communication services. Interestingly this sector also includes telecommunications and audiovisual services.

6.1.4 The SAPO established its own Skills Development Institution to address the skills deficit referred to in the White Paper on Postal Policy of 1998 as well as to deal with ongoing skills development requirements. This is a unique area whereby South African tertiary institutions do not cater for this sector. Whilst this is the situation in most countries, there are selected countries like Germany and Malaysia where studies in the postal sector are offered. Challenges to readily attract and develop the right cadre of skills impede both the efficiency and transformation objectives of SAPO.

## **6.2 Postal Services SOCs**

### **6.2.1 South African Post Office (SAPO)**

SAPO was established in accordance with the Post Office Act (1958) as a government business enterprise to provide postal and related services to the South African public. SAPO was granted an exclusive mandate to conduct postal services in South Africa in accordance with the Postal Services Act (1998). The Act makes provision for the regulation of postal services and operational functions of the company including, its universal service obligations.

The Postal Services Act 1998 emanated from the White Paper Policy of 1998 and resulted in the inclusion of the HDI group particularly in under-serviced areas. Hence a requirement to promote affordable provision of a wide range of postal services in the interest of economic inclusion for rural areas and small towns where post offices are not sustainable surfaced as a priority. The SAPO is viewed as an entry point into the public access network and therefore forms a hub around which many other ICT activities are usually clustered in under-serviced areas.

Thus branches of the post offices will continue to be part of the infrastructure programme under the Expanded Public Works Principles in several communities each year for the next ten years.

In 1994, South Africa was readmitted to the Universal Postal Union (UPU). To comply with the standards of the UPU, accessibility to a post office had to be in the form of either one post office for every 10 000 persons or one post office within a 5km radius.

Several initiatives launched by SAPO to improve universal access and service have resulted in bringing the following ICT services closer to the people;

- launching the Postbank visa card for elderly clients, reducing the necessity to carry cash
- opening 72 new post offices, of which 52 are in rural under serviced areas
- concluding agreements with seven municipalities for the collection of municipal rates and taxes
- partnering with provincial governments in the renewal of motor vehicle licences
- partnering with the South African Social Security Agency in the disbursement of social-security grants to develop the socio-economic development of the country

#### 6.2.2 Postbank

As defined in the Postal Services Act, the main objective of the Postbank was to promote a savings culture. In 2004, Postbank launched the Mzansi account initiative with the effect that by December 2008 they had more than six million account holders. Postbank also contributed greatly to the national Savings Drive by launching its Visa branded Postbank card, and sold retail bonds to the value of R1,4 billion.

The South African Postbank Act Limited No 9 was promulgated in December 2010. The signing of the Postbank Act established the Postbank as a subsidiary of the SAPO. During 2010 the Postbank celebrated its centenary as a savings bank with legislation promulgated that will enable the organisation to change from a deposit-taking institution to a fully-fledged bank.

Overall, good progress has been made towards the implementation of the Postbank Act. The Postbank has applied for and received VISA membership and is on the verge of finalising the development of lending, borrowing and investment policies of the Postbank as required by section 26(2) of the Act. This will allow the Postbank to offer relevant services through an extended and enhanced product portfolio.

The envisaged role of the Postbank in prioritising the banking needs of the unbanked majority, thus facilitating their inclusion into the economic mainstream will go beyond just promoting a culture of savings and this has led to it being accorded the status of a flagship project for the DoC.

### **6.3 Courier services and unregulated parties**

#### **6.3.1 Courier Services**

Postal services has traditionally, been the domain of state-owned entities that have an exclusivity on basic mail services, whilst courier services most often used for parcel delivery or expedited mail services, are often supplied by privately owned companies. During the last two decades the postal sector has undergone dramatic changes globally and the difference between postal and courier services has become unclear. Suppliers in the unreserved postal services category include the likes of international courier companies e.g. FedEx, DHL and TNT.

South Africa as a signatory to the UPU resolutions, has agreed to the development of a regulatory framework that provides for Extra Territorial Offices of Exchange (ETOE) within the South African market. The UPU defines ETOEs as an "office of exchange operated by or in connection with a designated operator outside its national territory, and is established for commercial purposes to draw business in markets on the territory of another member country<sup>16</sup>"

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<sup>16</sup> ICASA Annual report 2010/2011

## 6.4 Future policy direction

- 6.4.1 The challenge is that the SAPO is becoming redundant in its current form and this is evident in declining revenues and the increase in new sources of competition for example the advent of emails and SMS has led to reduction in mail volumes with a direct impact on revenues. This has further lowered SAPO's profitability for reinvestment in under serviced areas and to roll out infrastructure expansion projects.
- 6.4.2 As part of overall postal sector reform and national development policy framework, guidelines need to be introduced to identify opportunities that the Postbank can exploit and utilise. Furthermore a policy framework needs to be introduced to fill in the gap of managing risk and sustainability of Postbank.
- 6.4.3 A further area which can benefit from policy direction is continued transformation through preferential procurement and skills development. With properly designed and funded training programs, job creation can be addressed through SMME supplier partnering initiatives.
- 6.4.4 Ongoing market liberalisation, technology and product substitution will continue to pose strong threats to the Post Office and PostBank. This has led to policy gaps and will provide an opportunity to be addressed via an integrated ICT policy. By way of example with a forecasted increase in e-commerce there is still a need to courier goods from the seller to the buyer. SAPO can start to not only provide meaningful services in this aspect but can also start to provide actual e-commerce based solutions itself.
- 6.4.5 Policy effectiveness with respect to the unregulated space pertaining to courier services should be reviewed. ICASA is responsible for the issuing of licences to operators in the unreserved sector and has indicated that a regulatory framework will be developed to define courier services. This area requires regulatory attention as currently international mailing houses accept mail on behalf of clients and identify couriers to convey the parcels where after the mail is sent to SAPO

to physically deliver to destined entities in South Africa. Sending parties therefore do not incur or pay for the actual costs attached to the postal delivery service using this method.

#### Recommended areas for discussion

- Mobile banking and e-payments
- Modernisation of the Post Office – what are relevant services in urban and rural areas
- Opportunities to develop and launch new e-commerce based products and services
- Capacity building for postal services and modern day PostBank

#### Recommended discussion questions

- How would you define relevant postal services in South Africa?
- How would you define successful postal reform in South Africa?
- What role can the Postbank play to integrate all economic growing into the banked sector?
- What are the obstacles and barriers preventing us from achieving successful reform of SAPO and the Postbank?
- What policy needs to be put into place to regulate extra territorial offices of exchange operating in South Africa?

## 7. e-COMMERCE

### 7.1 Historical policy overview

7.1.1 Global development towards a knowledge based economy comprising of information societies has drastically changed the landscape upon which traditional products and services were delivered. Super connectivity and hyper digitisation allow for the almost instantaneous crossing of territorial borders to interact and transact in cyber space. This has challenged the traditional understanding of the eco-system within which government, the private sector and citizens function. e-Commerce has been a game changer in the knowledge economy and has create a global marketplace without conventional rules. This coupled with the fact that e-commerce transactions can span multiple legal jurisdictions across different countries creates the need for policy and regulatory intervention.

7.1.2 In recent years, the availability and mass adoption of m-commerce using mobile channels jumpstarted the knowledge society maturity phase where applications designed to create highly relevant solutions to all economic sectors saw mass adoption and fast growth. MPESA, launched in Kenya in 2007 offering a suite of m-commerce based products and services is the most cited example in Africa and even globally where this product managed to gain wide spread take up and reach in under banked and unbanked economic sectors across Kenya. Approximately 30% of Kenya's GDP now transacts via the MPESA platform<sup>17</sup>. Mobile payment is the third-largest growth and profitability avenue and is set to contribute significantly to revenue coming from the nontraditional mobile services segment in emerging markets<sup>18</sup>

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<sup>17</sup> Annual results : Safaricom 2010-2011

<sup>18</sup> Predicts 2012: Emerging Markets are Changing the World of IT – Gartner 29 November 2011

7.1.3 Mobile commerce extends to more than selling products via a mobile channel. Like for most e-commerce transactions, the user decision to use the functionality is usually preceded by an awareness process influencing and informing the potential user's decision to use electronic commerce as a trusted purchase channel. A Gartner user survey in 10 markets showed that security concerns are a top barrier to mobile payment adoption<sup>19</sup>.

7.1.4 There is an increasing intersect between policy making and regulatory requirements in financial services and telco based solutions and where software driven transactions can use multiple protocols to exchange data beyond that of web connectivity.

## **7.2 Overview of ICT landscape in SA**

7.2.1 The number of South Africans actively using e-commerce based services is increasing and online retail spending in South Africa reached R2bn in 2010<sup>20</sup>. Growth in e-commerce in South Africa is driven by increased usage on the Business to Consumer (B2C) as well as Business to Business (B2B) transactions. For B2B and in keeping with global trends many companies are adopting online procurement systems as a means to lower operating costs and work more productively. Online banking has wide scale adoption amongst the client base of the big four banks in South Africa and e-commerce is one of the largest sales channels for the sale of airline tickets.

7.2.2 SITA plays a central role to the advancement of Government to Citizen (G2C) e-commerce solutions for government. The South African Revenue Services (SARS) provides tax payers access to a free suite of software applications linked to eFiling which allow taxpayers, practitioners and businesses to complete their returns offline and then submit the documents to SARS via the eFiling system.

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<sup>19</sup> Market Insight: A framework for mobile commerce – Gartner market analysis 12 August 2011

<sup>20</sup> World Wide Worx finding cited in Economist Intelligence Growth of e-commerce – 01 February 2012

Payments to SARS may also be made online. Many municipalities also offer online payment methods for traffic fines and other payments.

7.2.3 The DoC is responsible for e-commerce policy formulation. The Electronic Communication Transactions Act No. 25 of 2002 was published as the legislative enabler for the policy put forth in the Green Paper on e-commerce. This included the promotion of universal access primarily in underserved areas, the promotion of e-government services and electronic communications and transactions with public and private bodies, institutions and citizens, the encouragement of investment and innovation in respect of electronic transactions and compliance with internationally benchmarked standards.

7.2.4 The ECT also provided for the development of a national e-strategy to address issues such as universal access, the maximisation of benefits of electronic transactions to historically disadvantaged persons or communities, the development of human resources in the Information Technology sector relevant to the objects of the Act as well as the evaluation of the adequacy of any existing processes, programmes and infrastructure providing for the utilisation of electronic transactions by SMMEs. The national e-strategy was not developed. The DoC however in response, through the Presidential National Commission (PNC) developed an Information Society and Development Plan (ISAD) with the objective of addressing challenges in co-ordination and integration.

7.2.5 There was also significant attention given to the security and privacy around the use of e-commerce in the Green Paper as well as the ECT. The area of security regarding electronic communications changed in 2003 when the Electronic Communications Security (Pty) Ltd Act no. 68 provided for the establishment of a company that will provide electronic communications security products and services to organs of state. This gave rise to the establishment of COMSEC<sup>21</sup> in

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<sup>21</sup> this is the former reference to Electronic Communications Security (Pty) Ltd) ie a company owned by the Government of South Africa through its National Intelligence Agency (NIA)

2003 to ensure that critical electronic communications of the South African government is protected and secured.

- 7.2.6 More recently, focus has shifted to creating policy in order to enable secure transaction environments for all South Africans to participate in electronic communications and transactions. The Cybersecurity Policy of South Africa was approved by Cabinet in 2012 with the objective of establishing an environment that will ensure confidence and trust in the secure use of ICTs.
- 7.2.7 The objectives of complying with internationally benchmarked standards have also been addressed when the Minister of Communications formally recognised the Internet Service Provider Association (ISPA) as an Industry Representative Body in terms of section 71 of the ECT Act.
- 7.2.8 A Broadband Policy for South Africa was published in 2010 as an effort to address the affordability, accessibility and universal access to broadband infrastructure to citizens, business, communities and government. The objective of increasing the access, uptake and usage of broadband is to promote economic development and growth as well as being an enabler for further social benefits. An increase in the uptake of broadband across all economic segments of the population group will create a pull for a growing demand for high quality G2C services.
- 7.2.9 Consumer protection issues have also been addressed through the creation of the Consumer Protection Act (CPA) which came into effect in April 2011. The CPA however does not provide for issues covered in section 43, 44 and 46 of the ECT Act. This pertains to the sale, hire or exchange of goods via electronic transactions and cooling off period as well as performance by the supplier as contained in the ECT Act. Protection of personal data and critical customer databases is becoming increasingly important. Attention thus needs to be given to incorporating these issues into the CPA so that consumers are protected.

### **7.3 Future policy direction**

- 7.3.1 A significant challenge facing government is the creation of a comprehensive national ICT policy to effectively deal with the various intersecting areas of e-commerce. During the last decade the convergence shift in technological development has seen previously distinct lines between the application and deliveries of such technologies erode. In order for policy to be an enabler of future growth in the ICT sector through adoption of e-commerce and m-commerce intersecting areas need to be dealt via a unified policy framework approach between financial services and consumer related matters.
- 7.3.2 Provision for the implementation of a national e-strategy has been made in the ECT. In response, the Presidential National Commission (PNC) developed an Information Society and Development Plan (ISAD) with the objective of addressing challenges in coordination and integration. This plan should be reviewed in terms of 'fit for purpose' to increase G2C and G2B e-commerce and m-commerce based solutions. A clear owner for the plan as well as implementation across government should also be assessed.
- 7.3.3 Moving forward, focus still need to be directed towards the objectives originally put forth in the Green Paper on e-commerce. In particular universal access, development of relevant infrastructure and development of a coherent e-government services strategy require more attention.
- 7.3.4 As more users adopt the method of online transactions, the risk of cybercrime increases. This therefore places an increasingly important focus on the need to address cybersecurity for both government data as well as personal data in the commercial domain.

**Recommended areas for discussion**

- Extending e-commerce to m-commerce channels, discuss which can provide highly relevant applications for South Africans?
- Universal access to e-commerce services
- Infrastructure needed for e-commerce services
- Development of coherent national government e-strategy
- Cybercrime and preventative measures to address protection of data and systems in use by government and the private sector

**Recommended discussion questions**

- Which government sectors should prioritise the use of electronic channels (including m-commerce) e.g. agriculture, health etc to send and receive information as well as conduct transactions in a secure G2C and G2B environment?
- What role can SAPO and the Postbank play to increase the uptake and adoption of e-commerce?
- What are the main issues which need to be considered in the formulation of policy and legal framework which is not yet addressed?

## **8. DIGITISING GOVERNMENT**

### **8.1 Historical Policy overview**

8.1.1 The integration of secure information technology systems into society coupled with their benefits such as accessibility, flexibility and simplicity has long been a priority in South Africa, and elsewhere in the world, with regards to services delivery. This use of secure information communications technologies to offer citizens and businesses the opportunity to interact and conduct business with government not only improves efficiency and effectiveness of government's critical service delivery areas but also streamlines processes within government itself.

### **8.2 Overview of ICT landscape in SA**

8.2.1 The DoC published a Green Paper on e-commerce in South Africa in 2000 which set out a framework for the development of e-Government initiatives in South Africa. A number of factors influenced the need for the development of such a framework.

8.2.2 The implementation of such services featured as a global trend at the time with governments such as the USA, UK and Australia developing policy frameworks for the digitisation of their government services. Key focus areas included the establishment of a political champion for driving e-Government services, the creation of a policy framework and significant investment in government IT infrastructure.

8.2.3 The Green Paper, in parallel with global trends, put forth a range of new strategies and frameworks needed across government in order to transform government into an e-Government. Significant to the success of e-Government was, and still is, the ability of developing a knowledge-based workplace where public servants are ICT literate and adopt modern systems. Coupled with this it was identified that governments' ability to equip employees with the necessary

skills and understanding through change management processes is crucial to the adoption of such systems.

8.2.4 Similarly, it also became apparent that the implementation of such systems would rely on the upgrading of governments information technology infrastructure and the development of a coherent IT strategy for government. This included the creation of data standards for interoperability as well as frameworks (both legal and strategic) for the security of information.

8.2.5 The objectives and framework set out in the Green Paper on e-commerce informed the legislative development of the Electronic Communications and Transactions Act of 2002. Selective aspects of the Green Paper were included in the ECT, with regards to the digitisation of government, such as the call for a national e-strategy under which the development of e-government services would serve as a priority as well as a chapter on the use of data and documents in electronic transactions over e-government services.

8.2.6 The implementation of a structured and coherent strategy to the implementation of e-government services is not visible despite the fact that a framework was set out in the Green Paper and the provision was made for the development of a national e-strategy. The main driver behind the implementation of e-government services has been the DPSA. Various initiatives have been undertaken by the DPSA through SITA and the creation of the Government Information Technology Officers Council (GITOC) to improve operations and IT spend across the three tiers of government.

#### 8.2.7 SITA:

In 1998 the State Information Technology Agency Act was published which saw the establishment of SITA (Pty) Ltd. in 1999. The objective of this was to create an agent for providing information technology, information systems and related services in a maintained information systems security environment on behalf of the state. Specific provision was also made in the Act for the agency to promote the

effective utilisation of information technology and to enhance the efficiency at all levels of public service. However, from outset, the role of SITA in the digitisation of government has been unclear. Moreover SITA appears to be geared towards operations–centric goals.

#### 8.2.8 GITOC

A significant development was also the establishment of the Government Information Technology Officers Council (GITOC) which serves a central role for the implementation of ICT initiatives in government. A number of initiatives have been established by the council such as the National Integrated Social Information System (NISIS) and an enterprise architecture development framework however a lack in funding has imposed challenges regarding implementation.

8.2.9 There is still a large demand for a structured government approach to exploiting the opportunities that e-government offers. Singular efforts to deploy initiatives will not be sufficient but requires a unified programme to drive critical mass adoption across government. This will in turn lead to improved operational efficiencies in government and where government will be more accessible to citizens.

8.2.10 Such a structured government approach has been a priority for the PNC-ISAD. This plan was developed as part of the requirements of the ECT Act for the establishment of a national e-strategy. This plan provides a comprehensive framework for addressing the challenges facing government in the form digitisation. Specific focus is given to the development of ICT infrastructure and universal access as well as coordination and integration of e-Government services.

### **8.3 Future policy direction**

- 8.3.1 The Government Digitisation initiative has, over the past decade faced a number of challenges. The absence of a coherent IT strategy for government has led to the widespread use of incompatible and non-integrated platforms and applications. This also leads to a silo mentality inhibiting the ability of government to develop effective system architecture for government interoperability. These challenges result in the unnecessary duplication of ICT functions and systems draining limited available resources.
- 8.3.2 Some of these challenges were addressed at the 2011 Government CIO Summit organised by GITOC. Six priority focus areas were identified in support of government's strategic outcomes including citizen access, integrated service delivery, ICT governance and leadership, ICT cost management, ICT performance and cross-government business and ICT capability. With regards to the delivery of integrated services, emphasis was placed on "affordable access to high integrity citizen data to both government and citizens in support of more citizen-centric services". Many of the above mentioned challenges were represented in the Green Paper on e-Commerce for South Africa in 2000 and still remain relevant to this day.
- 8.3.3 An issue which has received little strategic and policy attention has been the deployment of a universal broadband infrastructure with specific reference to structures within government as well as the subsequent infrastructure providing citizens with access to government. Provision regarding these issues was made in the Broadband Policy for South Africa published in 2010 with regards to the role clarification of government. Listed under the goals for involvement of National government is the connection of government and its entities through Broadband services at all levels for enabling e-government services as well as increasing uptake and usage of broadband services. An implementation plan will need to set out a pragmatic approach to achieving these goals.

- 8.3.4 Attention also needs to be given to the eReadiness of South Africa. An eBarometer Report was issued by the DoC where focus is directed on the e-readiness of South Africa. An e-Ready society can be defined as one that is capable of leveraging the inherent value of ICTs for its development. There are still areas of significant development required to achieve such a state. These areas include some of the above mentioned challenges such as infrastructure and accessibility.
- 8.3.5 The use of data analytics is helping agencies in the US Federal government with a wide range of improvement efforts, such as reducing improper payments, identifying intelligent budget cuts, providing better care, and mitigating vulnerabilities that could lead to cyber attacks and other threats<sup>22</sup>. As systems offer more capability for governments to function more effectively, a parallel requirement to technology advancements is that of skills development. Many countries other than the US in developed and developing economies view skilling of civil servants as a high priority.
- 8.3.6 Direction also needs to be created regarding the role of SITA in overcoming the challenges mentioned. As the agency in charge of the state's IT infrastructure and service delivery, its role will be significant in enabling the digitisation of government services. This is echoed in the ISAD plan where reference is made to the need for a partnership approach between the Departments of Communications and Education, SITA and service providers to address the challenges faced.

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<sup>22</sup> Deloitte: Tech Trends 2011 – a Federal Government perspective on convergence in IT

**Recommended areas for discussion**

- Digitising government as a key priority to accelerate government service delivery
- Co-ordination, planning and execution of the e-government strategy
- Funding required to realise such e-government infrastructures
- Relationship between government and the private sector as a critical success factor

**Recommended discussion questions**

- What needs to be done to rationalise, integrate other government authorities and harmonise SITA, the DoC and GITOC goals and activities?
- Who within government needs to take ownership of this initiative?
- Is government properly organized to respond to e-Government?

## **9. INVESTMENTS**

### **9.1 Historical Policy overview**

9.1.1 Policy directed towards investments in the ICT industry and more especially policy in support of a National integrated policy must factor in the full value chain activities across a converging operating environment for broadcasting, telecommunications, the postal services, e-commerce and Information Technology. Investments in the ICT industry will typically come in the form of:

- Government Funding and Government Spending
- Local Investments
- Foreign Direct Investment (FDI), domestic funding
- Public – private partnerships

9.1.2 Thusfar, with the exception of a managed liberalisation process for the telecommunications sector which led to the partial sale of Telkom, together with other market liberalisation policy driven objectives in the sector, the DoC has not yet developed specific policy for investments in the ICT industry.

9.1.3 With large infrastructure projects on the horizon as well as the need to create employment, the DoC now needs to give the investment aspect of an integrated National ICT policy attention.

### **9.2 Overview of ICT landscape in SA**

9.2.1 The White Paper on Telecommunications stated that South Africa needed a strong telecommunications equipment supply industry in order to respond to the development needs of the country and to position South Africa appropriately for the 21st century. It was felt that a vibrant globally competitive local telecommunications industry will attract more investments, generate employment and generate greater economic activity. It also stated that Telkom should be granted a period of exclusivity to provide basic public switched telecommunications services where the goal was to allow for the building out of

the basic network as quickly and as extensively as possible. Following the period of exclusivity, various market segments will be opened to varying degrees of competition which in turn would drive up additional investments and resultant overall telco market growth.

- 9.2.2 One of the objectives in the Telecommunication Act of 1996 was to encourage investment and innovation in the telecommunications industry and give preference to HDI for of equity ownership of up to 30% or a higher equity ownership percentage as may be prescribed. With respect to broadcasting, the sale of the SABC radio stations created the first formation of the commercial broadcasting landscape in South Africa.
- 9.2.3 The Broadcasting Digital Migration Policy of 2008 as amended in February 2012 also allows for government to subsidise set top boxes to economically qualifying household where the funds would be managed through the Universal Service and Access Fund. This would amount to some 5m households being eligible for subsidies and where this will be a key factor driving job creation particularly in the under-services areas.
- 9.2.4 In recent years, the South African government has invested almost R5 billion for the provision of robust ICT infrastructure, partly in preparation for the 2010 FIFA Soccer World Cup. South Africa is the 20th largest consumer of information technology (IT) products and services in the world<sup>23</sup>.
- 9.2.5 Government continues to both fund and invest in the ICT sector with significant sums of capital each year. Government's allocation of R2.5 billion for the manufacturing of STBs is a major progression towards reducing the Digital Divide. Additionally, the SABC and Sentech have received funding especially

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<sup>23</sup> Swiss Business Hub South Africa (2012). South Africa Major Business Sectors 2012

directed at recapitalisation programmes and some of the telco based government investments are in Neotel and Telkom.

- 9.2.6 Private sector investment straddles across multiple media and telco asset ownership in South Africa. In more recent times, a consortia based approach to investing in the installation of national backhaul optic fibre capacity signified the profile of risk taking in the private sector for large scale projects with medium to long term financial returns.
- 9.2.7 Since the privatisation of Telkom in 1996 which was one of the largest deals at the time in Southern Africa, where SBC Communications and Telekom Malaysia bought a 30% stake into Telkom for approximately R5.58 billion, FDI started to become a significant factor in telecommunications particularly.
- 9.2.8 The United Nations Conference on Trade and Development (UNCTAD) analysis of data from the World Bank's database on Private Participation in Infrastructure projects suggest that foreign companies invested more than \$100 billion in telecoms projects in developing countries over the period 1996-2006.
- 9.2.9 Although Africa's Proportion of FDI has grown over the last decade, it does not reflect a region that has one of the fastest economic growth rates and highest returns on investments in the world. Therefore South Africa's own investment requirements need to cater for the development of suitable infrastructure and content management.
- 9.2.10 The ICT goal to achieve 100% broadband access and to create 1 million jobs require significant investment in broadband infrastructure, services and content management. Currently, only 4 out of 100 households use broadband in South Africa as opposed to the OECD average of 23.3 fixed broadband subscribers per 100 inhabitants. However as stated elsewhere in this document, a digital

government will create a critical mass requirement which will catalyse overall broadband growth in the country.

9.2.11 The sector has seen significant investment into the expansion of fibre optic networks e.g. SEACOM, EASSy and WACS. FDI investment was also made through;

- Vodafone purchasing a stake in Vodacom
- Ericsson partnership with the City of Johannesburg in BWired to develop R1 billion fibre optic ring

9.2.12 At a summary level, the ICT sector does however face a number of challenges with regards to investments:

- the draft Broadband policy that was intended to facilitate growth does not adequately address a number of factors, particularly market structure, institutional arrangements and the regulatory framework amongst others;
- high service costs attracting ICT sector investors;
- limited ICT infrastructure with relatively low to average broadband speed capabilities and low broadband penetration;
- limited granting of new ICT licenses;
- ICT skills base; and
- labour related issues.

### **9.3 Future policy direction**

9.3.1 The current investment initiatives to develop the ICT industry are largely targeted at the delivery of basic and enhanced capability infrastructure. Sentech estimates that a National Wide Broadband Network can be rolled out in all 9 provinces over a period of 3 -5 years at a cost of R1.5 billion and where the planned roll out is estimated to create 30,934 direct jobs.

9.3.2 The development of a management framework to direct investment is critical. In order to derive benefits out of an Integrated National ICT strategy, the following areas should be targeted for investment;

- Content production and ICT based services over time as infrastructure matures
- Education and training
- Convergence around broadband and DTT
- Digitisation of government with a focus on security, health and education
- Integration of government entities and where digitisation of government will drive government efficiency

9.3.3 The 2011-2015 South Africa IT market compound annual growth rate (CAGR) is projected to be in the region of 13%, as a number of major IT infrastructure projects generate spending at provincial levels. Business Monitor International expects South African IT spending to increase from ZAR 72 Bn in 2011 to about ZAR 117.4 Bn in 2015, faster than real GDP growth. South Africa's information technology market is the largest in Africa, ranking 20<sup>th</sup> in the world in overall market size and 8<sup>th</sup> in IT spending as a proportion of GDP.<sup>24</sup>

9.3.4 South Africa has a stock exchange that is the 18th largest in the world; and modern infrastructure supporting relatively efficient distribution of goods. South Africa is a prime destination for non-oil foreign direct investment. ICT inbound investment in 2009 was buoyed by US\$ 2.2 Bn through the purchase of a stake in Vodacom by Vodafone. More recently, the US\$3.2 Bn Dimension Data buy out by Japan's NTT also increased inbound investment into the country<sup>25</sup>.

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<sup>24</sup> Source: Global Competitiveness Survey 2011; IMF data 2011; EIU 2011

<sup>25</sup> Economist Intelligence Unit 2012

South Africa's outbound investment in ICT tends to be in the form of telco expansion in Africa e.g. MTN and Vodacom. ICT products and services do not feature in the top export categories at this stage. However with planned investment into SEZ, this profile can be changed as ICT markets are established on the continent and globally. South Africa in striving to be globally competitive will benefit from policy support to increase its outbound investment into the continent and elsewhere globally.

The key areas of ICT investment globally and which are highly congruent with targeted investment areas for South Africa are:

- Digital Television
- Universal Access by all
- Digital Inclusion Programmes (subsidised PCs, notebooks, tablets, etc.)
- National broadband networks
- Improving broadband speed
- Improving uptake of ICT usage
- Increasing affordability
- Set-top Box infrastructure
- e-commerce and mpayments based solutions

9.3.5 For global investors entering the African market, South Africa has historically been perceived as the gateway into Africa. Such a perception is mostly true, however sentiment is changing and the impact of actual FDI in South Africa is not as high as expected.

9.3.6 A cursory look at UNCTAD statistics reveals that Nigeria attracted US\$11 billion in 2010 compared to South Africa's US\$1.6 billion and this trend is expected to continue into the foreseeable future. A recent forecast by the Economist of the 10 fastest growing economies in the world (2011-2015) features seven African

countries: Nigeria, Ethiopia, Mozambique, Zambia, Tanzania, Congo and Ghana implying that more African countries will be contending for international funding.

- 9.3.7 Notwithstanding the above, South Africa aims to strengthen and reclaim its' position as the Gateway to Africa, a theme repeated by His Excellency, President Jacob Zuma, so that it may gain access to BRICS markets and BRICS investment. As an economic springboard into Africa's potential one billion consumer base, South Africa makes a highly eligible partner in enabling companies to set up a base of future expansion onto the continent.
- 9.3.8 A number of funding resources are available for the public and private sector for ICT development. These include USAASA who is currently tasked with the administration of STB subsidies to the amount of R2.5billion and which funds government has set aside. National Treasury has also established a Jobs Fund in order to create 150 000 job opportunities over three years.
- 9.3.9 With South Africa's growth rate of 3% much lower than the other BRICS countries, there appears to be a mismatch between the new entrant and the other four member countries. South Africa can enhance its investment profile because of its' sound institutional stability, historically strong financial markets, and effective financial sector regulators that are looked on favourably by foreign investors. However, South Africa cannot afford to delay in communicating its ICT industry plans with BRICS partners and thereby gain traction on partnered benefits for the BRICS countries. South Africa has a lot to gain and contribute from partnering with the countries with the highest global ICT indices in the world.

**Recommended areas for discussion**

- Role of government and private sector in broadband infrastructure investment
- Effectiveness of USAASA in allocation of funds for STB manufacturing
- Incentives for increasing local and foreign direct investment

**Recommended discussion questions**

- What are the key suggestions to remove barriers to SME and SMME development?
- What is the role of public sector and the role of the private sector in broadband investment?
- What policy changes are required to attract foreign direct investment?
- What policy changes are required to enable and improve further local investment?
- Is policy intervention required to support an increase of outbound investment?
- How should the National integrated ICT policy be designed to create an enabling environment for ICT investments?
- What are the fiscal and other interventions in the form of incentives which should be contained in policy driven imperatives to drive investments in the ICT industry?

## 10. HUMAN CAPITAL

### 10.1 Historical Policy overview

10.1.1 Skills in the ICT sector have been shaped by a number of policies and even various Corporate Social Investment (CSI) and corporate training project driven initiatives guiding its growth over the last few years. Specialised effort was focused on ICTs to address four main factors viz., skill shortages in engineering and technology, transformation in the sector to represent the HDI, gender and the physically challenged groupings and lastly the need to develop specialised skills to support an increasingly complex digital environment in ICTs.

10.1.2 Globally the transition to a digital environment also received much attention and it became necessary to accompany large technology projects with formal change management initiatives in order to migrate the workforce and users of digital systems to a new operating environment. Another important factor which started to become prevalent was the lowering of barriers to enter into the ICT sector as costs to establish green field solutions dropped. Thus adoption of systems became relatively easier compared to computer based solutions and non-software driven systems of the past. It is also important to observe that as more and more systems went online, this drove an uptake in the user base which translated into increased usage of the Internet via mobile and fixed line device access.

10.1.3 The major relevance of the above is that skills required to design, manufacture, install, operate and maintain digital ICT systems within this rapidly changing environment also needed to adapt with agility. Learning had to be specifically designed to suit the purpose of varying skills needs versus a highly formal learning intervention of the past. This changing method applied to both the high end of skills development e.g. where software programmers would rely on software debugging tools and prewritten software coded modules as tool-sets

versus developing code from scratch to end user software which took on an online user paced learning mode of teaching via machine based methods.

10.1.4 Locally, an important factor impacting on the skills development requirement was that there was an ageing workforce who had installed, maintained and operated the key ICT systems in use across all industries including that of broadcasting and telecommunications. These skills designated as 'critical skills' were required to lower the risk of transitioning to the digital environment. Sector Education and Training Authority (SETAs) were established to focus on specific skills development programmes in the various industry verticals and skills across the different work bands needed to be formally recognised irrespective of the employee not having a matric certificate or formal tertiary education. Given South Africa's education system pre 1994, this was an important step in the right direction to give recognition to tacit work knowledge gained.

10.1.5 The Media, Information & Communication Technology (MICT) SETA currently classifies the ICT sector as professionals from the following sub-sectors: IT, Telecoms and Electronics Industries. The MICT reported the following growth in the sector in 2005, IT Sub Sector (16.39%), Telecommunications Sub-Sector (26.27%). Apart from the MICT, other SETAs include The Insurance Seta (INSETA) which currently represents an industry with a very wide range of employers, many of whom are very small (about 10 employees) and very large employers (in excess of 12000 employees). The majority of the workforce represents skilled and highly skilled employees. The Manufacturing, Engineering and Related Services SETA (merSETA) Authority is another one of the 23 SETAs established through the Skills Development Act of 1998 to ensure that the National Skills Development Strategy (NSDS) is fulfilled

10.1.6 The E-education White Paper was adopted in 2004 where the main goal is to have every learner at schools to be ICT competent by 2013. Another major driver in the policy arena was also the DoC driven e-Rate Policy & the

establishment of an Educational Network (EduNet) which addressed school connectivity barriers mainly due to the affordability of connectivity to the Internet for the purposes of education. This document leads all ICT initiatives and together with the Electronic Communications and Transactions Act of 2002 as a basis, promotes the establishment of a Universal Service Agency, a Universal Service Fund, an Education Network (EduNet) and e-rate to support easier access by educational institutions to ICTs.

10.1.7 The White Paper on Telecommunications stated that knowledgeable and skilled human resources of the nation are its wealth and without adequately trained people at all levels, the nation will not be able to expand its economy to create the wealth needed to lift the standard of living of all its people. Furthermore the telecommunications sector plays a key role both within the ICT industry as well as in multiple secondary industries.

10.1.8 In accordance, the DoC proposed to make funds available to enable the capacity building where the management of such funds was for the responsibility of ICASA. The essential provisions are set out below:

ICASA will support telecommunications focused applications in the following categories:

- Training and re-training of human resources presently active in the sector.
- Development and growth of the training of artisans and technicians.
- Development and growth of undergraduate higher education.
- Development and growth of postgraduate training and research.
- Promotion of interest in technology among schoolchildren.

## **10.2 Overview of ICT landscape in SA**

10.2.1 MICT Seta was established specifically to address skills development in Information Systems, Electronics and Telecommunications Technologies. The Skills Development Act governs skills development in the ICT sector and is

subsequently overseen by the Department of Labour (DOL). The Department of Trade and Industry (dti) also established SAVANT which serves as a marketing and awareness programme for the South African ICT and Electronics Sector. The main objective of SAVANT is to support existing South African ICT and electronics companies as well as foreign investors. SAVANT also promotes South Africa abroad and acts as intermediary between investors and domestic businesses.

10.2.2 A National Colloquium on Information and Communication Technology Education and Training and the production of graduates, was held in March 2007. This Colloquium brought together representatives of government, universities and the ICT industry in a ground-breaking joint venture to address the need for high-level skills in the ICT sector. Following on this there was also a National e-Skills Dialogue Initiative which was launched in March 2009 where this dialogue facilitates communication between the government and a variety of role players in the industry to ensure alignment between the supply and demand of skills.

10.2.3 Aligned to this, the DoC launched an e-Skills Institute to take a new approach on ICT education and training. The CSIR and the Department of Science and Technology (DST) has a focus on R&D including software applications development. In order to capacitate for the future ICT industry requirements which includes job creation, the location of these skills and Innovation based activities together with funding should be assessed.

10.2.4 In September 2010 the DoC in conjunction with the e-Skills Institute held an ICT Career expo to encourage the uptake of studies in the ICT field where the theme selected was; "the e-Generation, building capacity for an e-Society".

### 10.3 Future policy direction

10.3.1 On the skills front, many young people from historically disadvantaged backgrounds come out of the Basic Education system never having been exposed to ICTs. This impacts their performance in institutions of higher learning, as well as their ability to adapt and become competent in the use of ICTs. Related to this is that post-school education and training system (colleges and universities) produces graduates that are insufficiently e-skilled, regardless of their selected profession and this impedes the adoption of computer based solutions in the wider industry which in turn affects productivity and global competitiveness.

10.3.2 This finding was confirmed in 2008 when the DOL published the National Master Scarce Skills List indicating that South Africa has a critical shortage of 'ICT workers.' In addition to generally insufficient ICT skills output from the educational system, South Africa has also not invested in developing specialised Research and Development (R&D) and Innovation skills despite this being an important area to unlock global competitiveness. It also becomes evident that whilst there are multiple programs across all key stakeholder groups addressing skills development, there is room to improve upon the yield from R&D and Innovation and where the connect between R&D and Innovation for ICT as well as addressing the feeder supply into the workforce needs to be strengthened<sup>26</sup>.

Employment in ICT needs to be created throughout all sectors across government and industry ranging from the postal sector to local content development including animation to installing and operating broadband networks. Some 160 000 jobs could be created through broadband infrastructure initiatives by 2020.<sup>27</sup> The immediate employment opportunity linked priorities defined by the DoC are; Broadband, Digital migration and the Postbank.

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<sup>26</sup> National e-Skills Plan of Action 2010

<sup>27</sup> Source: Engineering News, posted August 23rd, 2011

10.3.3 Non-core ICT skills and 'closely related skills' will serve as foundation skills for all ICT based projects. The non-core ICT skills that are available from other professions in the market would require 'basic ICT up-skilling programmes to enhance knowledge of ICTs and become more proficient in the use of ICTs supporting the effective working of other secondary industries.

#### Recommended areas for discussion

- Integration between NEMISA, ISSA and other institutions to streamline and harmonise development of ICT skills
- Capacity building at the DoC , SOCs and ICASA
- Government's role in defining collaboration with tertiary institutions to address specialist ICT skills development

#### Recommended discussion questions

- What policies and incentives can be put in place to encourage highly qualified skilled professionals to remain in the country/ return to the country?
- How can a closer relationship be forged between institutions and the private sector in order to produce relevant skills required for the industry?
- What funding mechanism should be established to promote skills development?
- How can government encourage the private sector towards the development of ICT skills?

## **11. INDUSTRY DEVELOPMENT**

### **11.1 Historical Policy overview**

11.1.1 ICT industry development is an important area for South Africa in that job creation and the ability to attract increased investment into manufacturing is highly dependent on it. ICT industry development is regarded as an economic growth engine and is thereby emerging as a key priority area for the DoC.

11.1.2 With the exception of reference to STB manufacturing and the establishment of local content production hubs in the draft Broadcasting Digital Migration Policy, the DoC has not developed any particular policy stance on ICT industry development thusfar. An ICT Manufacturing Policy issued by the DoC is therefore conspicuous by absence and needs attention. However, it is understandable that the DoC has been attending to a backlog of priorities in facilitating the transformation of the ICT industry. In particular, universal access, universal service and ICT market liberalisation all contribute to the strengthening our democratic discourse and were required to shape the market post 1994. However as the DoC prepares for a new era in ICTs for all South Africans, ICT industry development is a key foundation block for the future environment.

11.1.3 The dti will continue to play an important role in administering incentives to support the ICT manufacturing sector. In the future environment, it is expected that the DoC will further support through policy intervention initiatives which are aimed at increasing local and global investment into ICT industry development in South Africa. Thus far, the incentives and schemes which have supported South Africa's ICT manufacturing sector are administered by the dti, as well as the Industrial Development Corporation (IDC), South African Revenue Services (SARS) and the National Research Foundation (NRF) on behalf of the dti.

## 11.2 Overview of ICT landscape in SA

11.2.1 South Africa's R&D led electronics (ICT) manufacturing capacity dwindled significantly towards the late 1980's onwards<sup>28</sup>. This had an immediate detrimental effect on the economy with widespread job losses in factories across South Africa. At the time South Africa was actively manufacturing an array of audio visual consumer products ranging from radio and television receiver sets through to electronic security prevention systems installed in motor vehicles. Manufacturing plants were located across the country and goods were manufactured for both local and overseas market consumption. There is sound evidence to show the innovation present in South African manufacturing as consumer based products e.g. prep-paid telemetry based electricity systems were initially conceptualised and designed as a relevant market solution as far back as the 1980s.

11.2.2 Design capability in the various manufacturing plants extended from highly skilled engineering and design through to that of artisanal skills deployed on the assembly benches to build up products from component and PC board level. Local manufacturing plant skills even included fitters and turners responsible for mechanical design and assembly of equipment suitable for South African operating conditions.

11.2.3 A few factors contributing to the dearth of this once vibrant electronics industry include South Africa's overall global competitiveness to match and beat price in low cost manufacturing destinations established in the East and Far East. An interesting phenomenon started to occur in the world where the higher costs elements pertaining to ICT manufacture viz., that of R&D and engineering design comes from what is regarded as higher cost developed countries and where the actual assembly and manufacture is then carried out in lower costs and emerging market countries. Thus even in the East and Far East this led to the segmentation of R&D and design input typically originating out of countries like

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<sup>28</sup> Economic Sectors and Employment Cluster 2010/11 – 2012/13 Industrial Policy Action Plan

Singapore, India, Malaysia, Japan and Korea and where large scale manufacturing output is produced by countries like the Philippines, Indonesia and China. This inevitably led to an overall strengthening of the ICT manufacturing belt in the South East Asia region and where ICT exports to the developed world regions notably increased.

11.2.4 Another key trend which emerged in the last two decades was the specialisation in ICT manufacturing along two lines viz., that of software engineering and hardware engineering with India choosing specialism in software engineering and China establishing global leadership in hardware manufacturing and engineering design through mastering large scale manufacturing of sophisticated and miniaturised components. In the last decade this too has evolved to embedded software solutions being deployed thereby increasing the presence of software skills required to provide support to a host of industries outside of ICT.

11.2.5 The South African Government, in recognising the importance of manufacturing in the economy, recently developed two strategies: the National Research and Development Strategy (NRDS) and the Integrated Manufacturing Strategy (IMS). The former, released by the Department of Science and Technology (DST), aims at ensuring that technology resources are better developed, focused and utilised. The latter strategy, by the Department of Trade and Industry (dti), recognises that South Africa's future competitiveness will depend on the capacity of the manufacturing sector to master advanced technology domains, to innovate and to meet the precise and evolving needs of customers.

11.2.6 The Industrial Policy Action Plan (IPAP)<sup>29</sup>, which has been developed by the dti, aims to strengthen and deepen existing financing support instruments particularly by focusing on the Support Programme for Industrial Innovation (SPII) and the Technology Venture Capital Fund as part of a broader package of measures to drive economic stimulus. The main aim is intended to create more successful

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<sup>29</sup> Industrial Policy Action Plan (IPAP) 2012/13 – 2014/15

and innovative SMEs that will use new systems and innovations to produce new products for global and local markets.

11.2.7 Intent on implementation action is also clear with reference to the development of Special Economic Zones (SEZ) to support long-term industrial and economic development. A new SEZ programme will be used to promote the creation of a regionally diversified industrial economy by establishing new industrial hubs in underdeveloped areas. The utilisation of SEZs will thus play a key role in government's objectives for industrialisation, regional development and employment creation. The document makes direct reference to the manufacture of STBs and software engineering based solutions which presents an opportunity to build on the plans to support ICT manufacturing in South Africa. It is relevant to note that reference was already made in the DoC's National Government and Information Communications Strategy in 1997 to develop SEZ.

11.2.8 Further development is also planned with regards to improvement of South Africa's software development capabilities through globally recognised certification of processes used to develop and maintain software applications. The objective is to improve the quality of South African software through process improvement training using Capability Maturity Model Integration (CMMi) and Team Software Process (TSP) methods and alignment of product development with domestic and global requirements. CMMi capability will enhance South Africa's profile to attract foreign investment for software development as this is a hallmark signifying software quality and where only a few countries excel in the attainment of this level of certification.

11.2.9 Collaboration between the dti and the DoC has also developed with regards to the opportunities being presented by STB manufacturing. With the approval of the DVBT-2 standard as the broadcasting standard for South Africa, an opportunity for the industry to move forward with manufacturing and the provision of other ICT based services supporting digital broadcasting is provided. There is

an opportunity to link the manufacture of STBs to a long-term vision to manufacture Integrated Digital TVs (IDTVs) for local and external markets. Global forecasts show that even with an increase in Internet connected TVs, the STB market will continue to grow<sup>30</sup>.

11.2.10 A South Africa industry forecast by Oxford Economics shows that manufacturing output growth is forecast to be higher than GDP over the next decade, where up until 2020, manufacturing output is expected to grow on average by 4.3% per year. However, it is indicated that the three fastest growing sectors in manufacturing over the next decade will be motor vehicle bodies & parts, electric fittings and machine tools. Of the Top 10 fastest growing industries in South Africa, telecommunications equipment ranked 8th last year but a forecast for the next 5 years does not feature the ICT industry<sup>31</sup>. This provides a call for action by the DoC to develop an ICT focused industrial development strategy.

### 11.3 Future policy direction

11.3.1 South Africa has lost its position as a leader in the rollout of ICT services on the African continent and lags behind other BRICS countries in almost all aspects of the ICT value chain<sup>32</sup>. In dealing with immediate resource constraints and whilst gearing up capacity, South Africa must take a strategic decision on which part of the ICT value chain the country should focus.

11.3.2 The lack of new innovations originating in South Africa needs attention and could be addressed through redirecting funds which are currently injected into the CSIR and DST led initiatives to the DoC. For South Africa to achieve ICT leadership and successfully position itself as an ICT hub on the continent, it will

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<sup>30</sup> There is an assumption that IDTVs will decrease STB manufacture – Gartner believes the contrary due to the flexible and expansive functionalities STBs can offer - Market Trends: Set-Top Boxes Evolving in a Competitive Market, Worldwide, November 2010

<sup>31</sup> Oxford Economics: South Africa Industry Forecast Q1 2012

<sup>32</sup> The Global Information Technology Report 2012 : World Economic Forum

require high levels of R&D with innovation in order to allow for new inventions and technologies to emerge. Hence existing strategies and policies to foster robust, well-coordinated institutional arrangements that lead to development of indigenous world-class, technology innovations in ICT through directed national ICT research, development and innovation programmes need to be revised.

11.3.3 There is a general inadequacy in ICT skills output from our educational system. South Africa has also not invested in developing specialised R&D Skills, yet there is great potential in ICT Research and Development and Innovation that needs to be unlocked in order for the country to become globally competitive.

11.3.4 Throughout South Africa's manufacturing history there has been focus on improving the economic and social status of the country which requires more capital, technology and skills. South Africa, given its reach into the rest of Africa via physical connectivity routes including land, air and sea as well as of more recent ICT infrastructure based connectivity is ideally positioned to widen economic corridors into the continent. Specifically designated manufacturing zones could individually specialise and collectively harmonise on the manufacture of ICT goods, including software based services to meet expanded local consumption as well as African market and global market requirements<sup>33</sup>.

11.3.5 Government has set out a New Growth Path. This path is bold in that it seeks to create 11-million jobs by 2030, reducing the unemployment rate to 6% from 25%,<sup>34</sup> where 90% of new jobs are to be created by small and expanding private companies. The ICT manufacturing sector plays an important role in fulfilling this target.

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<sup>33</sup>Business Monitor International expects South African IT spending to increase from ZAR 72 bn in 2011 to about ZAR 117.4 bn in 2015, faster than real GDP growth

<sup>34</sup>Economist Intelligence Unit

11.3.6 To enter into the new era, an integrated ICT industry development policy is required focusing on the development of the domestic market which includes the protection of the local investors through tariff and non-tariff barriers; building market pull and supply chains and providing subsidies for R&D technology transfer. Policy is also needed to direct the selection of domestic firms to enter into local and foreign joint partnerships and be eligible for various incentive driven investment benefits.

#### Recommended areas for discussion

- Investment in ICT R&D and innovation
- Development of skills necessary to meet forecast supply demand in manufacturing sector
- broadband opportunities presented with manufacturing of STBs and IDTVS
- Identification of policy and regulation interventions needed to enable and facilitate strategic manufacturing decisions i.e .from semi knock down (SKD) to complete knock down (CKD) whilst developing capacity

#### Recommended discussion questions

1. What are the policy and regulatory interventions required in South Africa to attract private sector investment in ICT industry development/ manufacturing?
2. What is the policy intervention required to increase FDI?
3. Who within government should be accountable for driving ICT manufacturing competitiveness?
4. Who within government should be accountable for driving R&D in ICT with a link to manufacturing competitiveness?
5. Should South Africa establish its own Silicon Valley as per BRICS and African country peers?

## 12. DEVELOPING A FRAMEWORK FOR A NATIONAL INTEGRATED ICT POLICY FOR SOUTH AFRICA

### 12.1 Context setting

12.1.1 The global economic world is in a state of turmoil, yet South Africa as part of an emerging market cluster continues to enjoy economic growth and the attention of capital investors from the developed world and BRICS country peers. This augers well for South Africa's continued trajectory towards sustainable economic prosperity and longer-term economic success in the region.

12.1.2 The global ICT landscape represents a significant opportunity for South Africa to rapidly progress on several fronts, stimulated by advancement and deployment in the primary ICT industry and growth in secondary industries linked to education, health care, agriculture, financial services etc. where ICT solutions serve as key enablers.

12.1.3 For South Africa to take advantage of these positive dynamics, bold steps taken within the ambit of an integrated policy framework must include creating employment, affordable and reliable access to increase the uptake of secure broadband services whilst keeping focus on establishing and maintaining ICT market competitiveness in Africa and in the global arena.

*The DoC wants to ensure that South Africa secures a global leadership position in ICT through a bold policy construct via a dramatically changed philosophy for implementation of an integrated National policy. This will be a significant departure from the evolutionary approach taken in the last decade. Key positioning of an integrated National ICT vision and strategy will be of befitting national priority requiring cohesive inter-governmental support whilst at the same time fostering a robust partnering and collaboration with the private sector.*

**12.2 Next steps**

12.2.1 Going forward, South Africa needs to apply a visionary lens to project a future operating economic context, an environment which is characterised by super connectivity, hyper digitisation, pervasive accessibility through affordable and secure services across South Africa, a flourishing and highly successful ICT industry characterised by globally acknowledged innovation where South Africa is the dominant ICT economic hub in Africa. This integrated ICT vision and even longer term visioning including using input gathered via the Colloquium process will be used to chart the policy trajectory linking to the implementation of this vision.

**Next steps to enable a National integrated ICT policy**

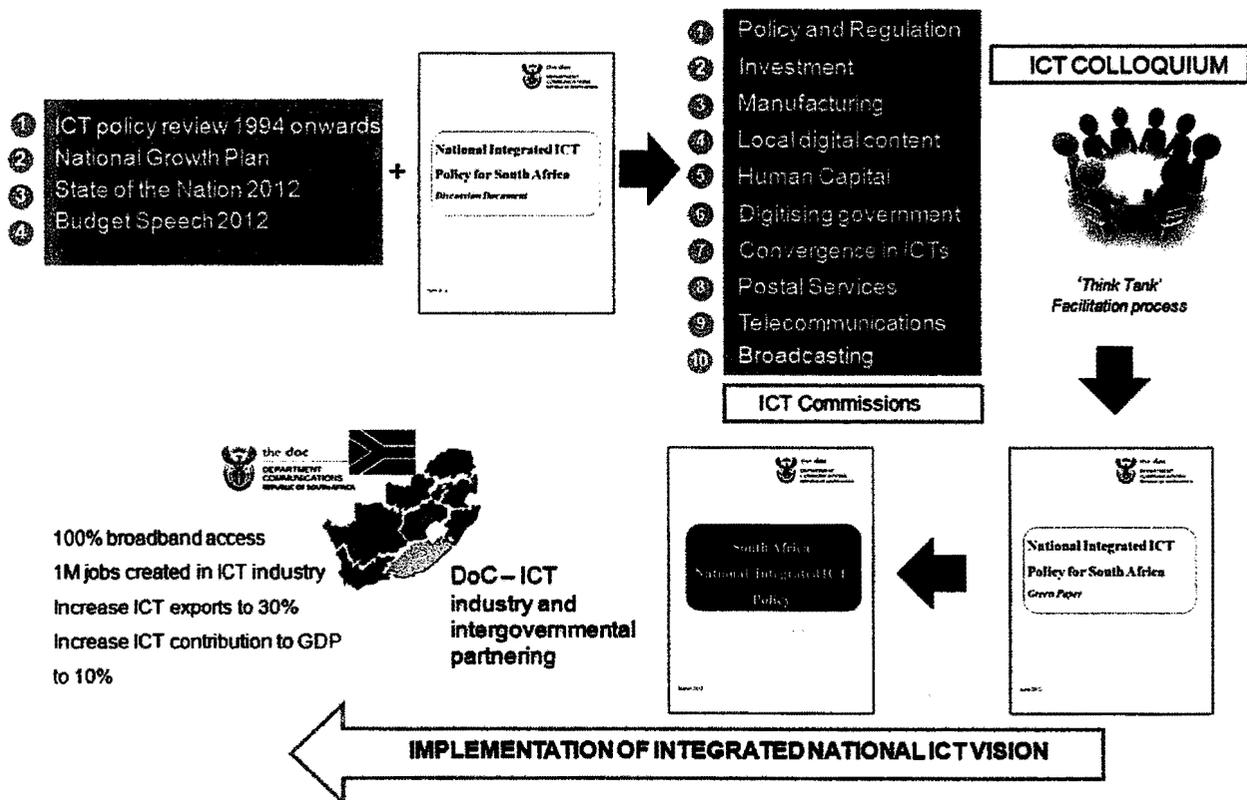


Figure 8: Next steps to enable a National integrated ICT policy

12.2.2 The development of an integrated National ICT policy will commence with a review of ICT policies post 1994. The review process will consist of both past

and forward looking assessment components. Firstly, the effectiveness of the policies since 1994 with respect to the achievement of the main objectives will be assessed and then going forward into the new era for ICTs in South Africa, the current policies as well as policy construct will be assessed for suitability. **Figure 8** contains an illustration of the process the DoC is leading towards an ICT colloquium where after a continued transparent and inclusive process with all stakeholders will lead to the development of a fully integrated ICT policy being submitted for Cabinet approval.

12.2.3 In order to ensure that all components pertaining to the ICT industry are fully considered, viz., IT, telecommunications, the postal services, broadcasting and other electronic media and more significantly to now bring back an enhanced focus on job creation and other GDP linked initiatives, the DoC has identified ten ICT Industry Workstreams (Commissions) which will be deployed to harness the contribution and design effort into the construction process of an integrated National ICT policy.

12.2.4 Feeding into this process will be the actual policy review output whilst taking in new input requirements defining the new era in ICTs. This will be used to shape both the new National integrated policy as well as the architecture design of a new policy environment. A joint build process requiring intergovernmental support and acknowledgement of the priority this policy needs to take will form a key element of the policy development process going forward.

12.2.5 The ICT Colloquium is scheduled to take place in Gauteng on the 19th and 20th of April. This discussion paper is made available by the DoC to help delegates prepare for discussion and debate on focus areas. Following on from the Colloquium, a Green Paper will be issued and which will be used to invite further public comment and input. Thereafter a White Paper will be

developed and this will lead to the finalisation of the National integrated ICT policy for approval by Cabinet.

### **12.3 A view of the future ICT environment in South Africa**

The main attributes of an ICT empowered South Africa in this future era will be;

- 100% broadband access
- the creation of 1million jobs in the ICT sector
- a digitally connected and accessible government with lowered operating costs
- a GDP which exhibits financial inclusion across the full economic spectrum and where a significant portion of GDP, in excess of 50%, transacts on real time epayment and mpayment systems with mass adoption of these platforms by Government, businesses, citizens and consumers alike
- enhanced domestic manufacturing and a significant net exporter of ICT systems and services
- an elevated economic standing and ICT profile within BRICS member countries
- an increase in local content production which addresses the multiple needs of language, content genres as well as content for the disabled
- an increase in data growth through adoption of ICT driven solutions in healthcare, banking, education and agriculture industry sectors

### **12.4 A focus on measuring success**

12.4.1 A measurable attainment of this vision will be underpinned by a pragmatic policy design which demonstrates and ensures a high correlation between the objects of ICT policy design and GDP targeting. It is vital that the key performance success milestones from the previous and current policy environment be carried forward where this will help in accelerating achievement in uptake of secure ICT services and overall ICT industry growth.

12.4.2 Furthermore successful achievement of an integrated ICT policy will require initial and on-going inter-governmental commitment and support at regional, provincial and national level. Once the National integrated policy is approved, an immediate implementation via focused project driven initiatives will follow to provide the rigour of a well-managed process towards realisation of the ICT vision.

12.4.3 This co-ordinated and joint implementation approach will need to inter-alia steer towards the following;

- foster strong public–private partnering to fulfill the objectives of a competitive ICT industry
- collectively prepare for a “digital ready” government
- ensure well governed SOCs and where necessary accelerate the merging of SOCs to consolidate mandate and reduce operating costs
- co-development of an industrial policy which has a key focus on ICT manufacturing and the establishment of designated ICT zones
- a reduction in customs duty for raw material for manufacture of ICT products and equipment
- tax incentives
- accessibility to pooled funding sources and funding instruments to stimulate SME and SMME sustained growth
- an investor friendly environment to attract increased foreign direct investment where this will include the establishment of fabrication plants as well as the location of local Innovation Hubs by targeting globally leading companies
- an educational system with increased output of engineering and technology graduates ranging from FET colleges to university level PhD level graduates
- an augmented and expanded ICT research and innovation operation revitalising previous and current initiatives to be boosted with funding

support. A signature characteristic of this research and innovation operation will be to drive a strong coupling between industry and academia on input and output links geared to GDP requirements

12.4.4 Finally, an important element of a measurement system is to assess South Africa's global competitiveness in ICTs, judged by independent standards. For example, the World Economic Forum's annual assessment of competitiveness can be used as a reference to help monitor progress towards the right outcomes. In alignment with the ICT vision, this performance measurement must ensure that South Africa becomes a distinct leader in Africa and where South Africa attains the position of being a recognised leader amongst the BRICS member countries insofar as ICT achievements and innovation is concerned.

## **12.5 Global innovation and leadership in ICT**

12.5.1 A hallmark of the DoC's vision for ICTs for all South Africans is to be bold, decisive and to dispense with the notion of incremental and evolutionary change. The Honourable Minister of Communications, Ms Dina Pule, has a view which calls for the mobilisation of the full industry including end users of ICT solutions to first envision an ICT world in 2020 where its impact on SA citizens, large corporates to SMME companies is profound, inspirational and sustainable. It is therefore appropriate to use this time as a critical juncture in 2012 to craft policies and implementation plans which at first define and later on enable the new era in ICTs for South Africa.

12.5.2 It becomes abundantly clear that the policies and policy approach of the past will not achieve this – only newer, ground-breaking policies which cohesively bind GDP elements to ICT growth and progress will be fit for purpose in the new ICT era.

## 13. CONCLUSION

- 13.1. ICT policy in South Africa post the transition to democracy was characterised by the need to liberalise broadcasting, make infrastructure and services accessible to all South African citizens as well as to create market stimulus through the licensing of new broadcasting and telco players. This has met with mixed success.
- 13.2. ICT policy in South Africa must continue to provide strategic guidance to an industry which still has potential to contribute more effectively to the country's GDP. The DoC can forge ahead and continue with an evolutionary policy approach and this may adequately serve the needs of a growing country. Instead the DoC has boldly decided to define a new era for ICTs in South Africa. An integrated National ICT policy design in this new future will not be broadly applicable but will have directional intensity to provide leadership steer towards the achievement of measurable goals which are better geared with South Africa's economic growth engine.
- 13.3. The manner in which the DoC is embarking on this strategic growth path reflects a strong multi-partnering ethos and where a willingness to take learning's from both successes and failures of previous policy design demonstrates an inclusivity style with strong leadership. This is a key defining moment for the ICT industry and for all current and future users of ICTs in South Africa – it provides an opportunity to be part of a new beginning to together build a new era in ICTs for all South Africans.

## List of Acronyms

Acronym	Description
.zadna	za Domain Name Authority
B2B	Business to Business
B2C	Business to Consumer
BRICS	Brazil, Russia, India, China, South Africa
CCC	Complaints and Compliance Committee
CMMi	Capability Maturity Model Integration
CODESA	The Convention for a Democratic South Africa
COMSEC	This is the former reference to Electronic Communications Security (Pty) Ltd ie a company owned by the Government of South Africa through its National Intelligence Agency (NIA)
CPE	Customer Premises Equipment
CSI	Corporate Social Investment
CSIR	Council for Scientific and Industrial Research
DAI	Digital Access Index
DFA	Dark Fibre Africa
DIO	Deputy Information Officers
DoC	Department of Communications
DOI	Digital Opportunity Index
DOL	Department of Labour
DPE	Department of Public Enterprises
DPSA	Department for Public Service and Administration
DST	Department of Science and Technology
DSTV	Digital Satellite Television
dti	Department of Trade and Industry
DTT	Digital Terrestrial Television
DVB-T2	Digital Video Broadcasting – Second Generation Terrestrial
EASSy	East African Submarine Cable System
ECA	Electronic Communications Act
ECNS	Electronic Communications Network Service
ECS	Electronic Communications Services
ECT	Electronic Communications and Transactions
EduNet	Educational Network
EIU	Economics Intelligence Unit
ETOE's	Extra Territorial Offices of Exchange
EU	European Union
FDI	Foreign Direct Investment
FET	Further Education and Training
G2B	Government to Business
G2C	Government to Citizens
GATS	General Agreement on Trade in Services

GDP	Gross Domestic Product
GITOC	Government Information Technology Officer's Council
HDI	Historically Disadvantaged Individuals
IBA	Independent Broadcasting Authority
ICANN	Internet Corporation for Assigned Names and Numbers
ICASA	Independent Communications Authority of South Africa
ICT	Information Communication Technology
IDC	Industrial Development Corporation
IEC	<i>Independent Electoral Commission</i>
I-ECNS	Individual Electronic Communication Network Services
I-ECNS	Individual Electronic Communications Network Services
I-ECS	Individual Electronic Communication Services License
IMST	Information Management Systems and Technology
INSETA	The Insurance Seta
IP	Internet Protocol
IPAP	Industrial Policy Action Plan
ISAD	Information Society and Development Plan
ISETT Seta	Information Systems, Electronics and Telecommunications Technologies education and training authority
ISETT Seta	Information Systems Electronics and Telecommunication Technologies SETA
ISP	Internet Service Provider
ISPA	Internet Service Provider Association
IT	Information Technology
ITA	Information Technology Association
ITU	International Telecommunication Union
ITU GE-06	ITU Regional Agreement for the Planning of Digital Terrestrial Broadcasting in ITU Region 1 in the VHF and UHF Frequency Bands
JSE	Johannesburg Stock Exchange
KAI	Knowledge Economy Index
LLU	Local Loop Unbundling
MDDA	Media Development and Diversity Agency
merSETA	Manufacturing, Engineering and Related Services SETA
MICT	Media, Information & Communication Technology
MNET	Electronic Media Network
MNO	Mobile Network Operators
MTSF	Medium Term Strategic Framework
MUX	Multiplexor
NEMISA	National Electronic Media Institute of South Africa
NIOF	National Information Officers Forum
NISIS	National Integrated Social Information system
NRDS	National Research and Development Strategy
NRF	National Research Foundation

NRI	Networked Readiness Index
NSDS	National Skills Development Strategy
OECD	Organisation for Economic Development
OIC	Office for Interception Centres
PBS	Public Broadcasting Services
PFMA	Public Finance Management Act
PMR	Private Mobile Radio Networks
PNC	Presidential National Commission
PSTN	public switched telephone network
PSTS	public switched telecommunication services
R&D	Research and Development
SABC	South African Broadcasting Corporation
SAITIS	South African Info Tech Industry Strategy
SANRAL	South African National Roads Agency Limited
SAPO	South African Post Office
SARS	South African Revenue Services
SATRA	South Africa Telecommunication Regulatory Authority
SEACOM	Southeast Asia Commonwealth Cable
SETAs	Sector Education and Training Authority
SIM	Subscriber Identification Module
SIM-card	Subscriber Identification Module Card
SITA	State Information Technology Agency
SKA	Square Kilometre Array
SME	Small and Medium Entities
SMEs	Small and Medium Enterprises
SMME	Small, Medium and Micro Enterprise
SMMEs	Small, Medium and Micro-Enterprises
SMS	Short Message Service
SNO	Second Network Operator ; Second National Operator
SOC	State Owned Company
SOE	State Owned Entities
SOEs	State Owned Entities
SEZ	Special Economic Zones
SPII	Support Programme for Industrial Innovation
STBs	Set Top Boxes
TAI	Technology Achievement Index
TEC	Transitional Executive Council
telco	Abbreviated reference to telecommunications/ used interchangeably
TENET	The Tertiary Education and Research Network of South Africa
TSP	Team Software Process
TV	Television
TVBC	Transkei Venda Bophuthatswana
U.K	United Kingdom

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U.S	United States of America
UNCTAD	United Nations Conference on Trade and Development
UPU	Universal Postal Union
USA	Universal Service Agency
USAASA	Universal Service and Access Agency of South Africa
USAF	Universal Service and Access Fund
USF	Universal Service Fund
VAN	Value-added Network
Vans	Value added network services
VOIP	Voice Over Internet Protocol
WACS	West Africa Cable System
WTO	World Trade Organisation

## Resources and References

### Reports, White Papers, Green Papers, Policies and Legislation

<b>BROADCASTING</b>	
<b>Year</b>	<b>Reports, White Papers, Green Papers, Policies and Legislation</b>
1993	Independent Broadcasting Authority (IBA) Act (Act 153 of 1993) promulgated
1994	Parliament establishes an Independent Broadcasting Authority (IBA) to regulate broadcasting in the public interest under the IBA Act
1995	Triple Inquiry Report (IBA)
1996	Sentech Act No. 63 of 1996
1996	The Former States Broadcasting Reorganisation Act (Act 91 of 1996)
1996	Discussion Paper on Satellite Broadcasting (IBA)
1998	White Paper on Broadcasting Policy
1999	Broadcasting Act of No. 4 of 1999
2000	Independent Communications Authority Act No. 13 of 2000
2002	Broadcasting Amendment Act 64 of 2002
2002	Media Development and Diversity Agency Act, (Act No 14 of 2002)
2005	Electronic Communications Act No. 36 of 2005
2008	Electronic Communications Act, 2005 amendment of Broadcasting Digital Migration Policy
2008	Broadcasting Digital Migration Policy
2009	Broadcasting Transmission Discussion Paper
2009	Broadcasting Amendment Act No. 4 of 2009
2010	Mobile TV Regulations (ICASA)
2011	Mobile Broadcasting Discussion Paper ( ICASA)
2012	Amendment to Digital Broadcasting Migration Policy

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**TELECOMMUNICATIONS**


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<b>Year</b>	<b>Reports, White Papers, Green Papers, Policies and Legislation</b>
1958	Post Office Act, 44 of 1958
1996	White Paper on Telecommunications
1996	Telecommunications Act No. 103, 1996
1998	State Information Technology Agency Act, 88 of 1998
2000	Independent Communications Authority Act of South Africa No. 3 of 2000
2001	Telecommunications Amendment Act, No.64 of 2001
2002	Electronic Communications Security (Pty) Ltd Act, 68 of 2002
2002	Electronic Communications Transactions Act No. 25 of 2002
2002	Regulation of Interception of Communication and provision of Communication Related Information Act No. 70 of 2002
2004	Telecommunications Amendment Act, No.2 of 2004
2005	Convergence Bill, 2005
2005	Electronic Communications Act of 2005
2007	Electronic Communications Amendment Act No. 37 of 2007
2007	Broadband Infraco Bill, 2007
2008	Regulations on Exemption from Licencing published by ICASA
2009	License Fee Regulation (ICASA)
	CCC Regulations by ICASA
	Interconnection and facilities-leasing regulations (ICASA)
	Standard terms and conditions for individual and class licences published by ICASA
2010	Guidelines for market Reviews (ICASA)
	Regulations on Technical Standards (ICASA)
	Call Termination Regulations (ICASA)
	Broadband Policy for South Africa (Government Gazette 33377, July 2010)

**TELECOMMUNICATIONS**

<b>Year</b>	<b>Reports, White Papers, Green Papers, Policies and Legislation</b>
	National Spectrum Published with Policy Directions (ICASA)
<b>2011</b>	Discussion Paper (ICASA) - Framework for introducing Local Loop Unbundling
<b>2011</b>	Spectrum Regulations (ICASA)
	Regulation regarding contributions to USAF (ICASA)
<b>2012</b>	ICASA decision on Local Loop unbundling programme for 2012
	Compliance manual regulations (ICASA)

**POSTAL SERVICES**

<b>Year</b>	<b>Reports, White Papers, Green Papers, Policies and Legislation</b>
<b>1958</b>	Post Office Act no. 44 of 1958
<b>1998</b>	White Paper on Postal Policy
<b>1998</b>	Postal Services Act, No. 124 of 1998
<b>2001</b>	Postal Services Amendment Act No. 33 of 2001
<b>2002</b>	Post Office Appropriation Act (No.9 of 1998)
<b>2004</b>	No. 33 of 2003: Postal Services Amendment Act, 2004
<b>2005</b>	Electronic Communications Act, No.36 of 2005
<b>2006</b>	Postal Services Amendment Bill of 2006
<b>2006 - 2007</b>	Postal Services Amendment Bill of 2007 – 2006 to amend the Postal Service Act of 1998
<b>2009</b>	South African Postbank Bill 2009
<b>2010</b>	South African Postbank Limited Act, No.9 of 2010
<b>2011</b>	South African Post Office SOC Ltd. Act No.22 of 2011

**Other resources**

Inter-Governmental Relations Framework (IGRF) Act (2005)

State Information Technology Agency Act, No. 88 van 1998

State Information Technology Agency Amendment Act (38/2002)

The New Growth Path: The Framework

Dow Jones company information

IFC Harvard Mobile Money 2010: Unleashing the power of convergence to advance mobile money ecosystems

UNESCO World Report: Towards Knowledge Societies - 2005

ITU: Measuring the Information Society – 2011

Study on the regulation of broadcasting issues under the new regulatory framework: EU Dec 2006

[www.dvb.org/](http://www.dvb.org/)

[www.itu.int/en/Pages/default.aspx](http://www.itu.int/en/Pages/default.aspx)

[www.ebu.ch/](http://www.ebu.ch/)

[www.cba.org.uk/index.php](http://www.cba.org.uk/index.php)

[www.ofcom.org.uk/](http://www.ofcom.org.uk/)

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[www.mobileworldcongress.com/index.html](http://www.mobileworldcongress.com/index.html)

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[www.vodacom.co.za](http://www.vodacom.co.za)

[www.cellc.co.za](http://www.cellc.co.za)

[www.toptv.co.za](http://www.toptv.co.za)