5.2.3.2 <u>Sentech</u> 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, <u>Broadband Infraco</u> 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

<u>5.3.1 Telkom:</u> 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 years⁸. Also since market liberalisation, which was initiated by the Telecommunications Act No.103 of 1996,

⁸ 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.

<u>5.3.2 Neotel:</u> 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 players⁹. 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)¹⁰. 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 telephony¹¹. Whilst it is reported that the mobile subscriber base in South Africa

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

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

¹¹ 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 underserviced 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 Infraco, 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 decline¹² 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 price¹³ and accessibility of services continues to dominate user needs. Fixed line density is 8% and Telkom continues to report negative fixed line growth.¹⁴

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

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

¹⁴ 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 publicprivate 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.¹⁵

Recommended areas or Usossio

- 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 de des comples non-

- How can policy/ regulation drive infrastructure investment by the private sector?
- How do you drive investment in under-serviced 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?

¹⁵ 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 underserviced 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 (ETOEs) 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 country16"

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¹⁶ ICASA Annual report 2010/2011

6.4 Future policy direction

- 6.4.1 The challenge is that the SAPO is becoming redundant is 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.

Keonomenuisianas or disausalan

- 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

. Reconnended discussion anestons -

- · 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 platform¹⁷. 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 markets¹⁸

¹⁷ Annual results : Safaricom 2010-2011

¹⁸ 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 adoption¹⁹.
- 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 2010²⁰. 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) ecommerce 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.

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

²⁰ 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 underserviced 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 COMSEC²¹ in

²¹ 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 egovernment 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.

- 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 <u>SITA:</u>

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 threats²². 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.

²² 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

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- 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 world²³.
- 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

²³ 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 20th in the world in overall market size and 8th in IT spending as a proportion of GDP.²⁴
- 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 country²⁵.

²⁴ Source: Global Competitiveness Survey 2011; IMF data 2011; EIU 2011

²⁵ 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.

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- 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

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- 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 strengthened²⁶.

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 2020.²⁷ The immediate employment opportunity linked priorities defined by the DoC are; Broadband, Digital migration and the Postbank.

²⁶ National e-Skills Plan of Action 2010

²⁷ 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

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- 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 onwards²⁸. 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

²⁸ 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)²⁹, 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

²⁹ 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 grow³⁰.

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 industry³¹. 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 chain³². 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

³⁰ 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

³¹ Oxford Economics: South Africa Industry Forecast Q1 2012

³² 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 requirements³³.
- 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%,³⁴ 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.

³³Business 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

³⁴ 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.

Randon manufalisation en al anticipation

- 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

Construction of the second second

- 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

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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

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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

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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	Independent Electoral Commission
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
1987 - 18 1889 - III - 9	rechnologies SETA
ISP	Internet Service Provider
ISPA	Internet Service Provider Association
ĪT	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
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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
toloo	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

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	:

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

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