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Department:
Communications
**REPUBLIC OF SOUTH AFRICA**

**The National Integrated ICT Policy Green Paper**
**Executive Summary**

## 1. The ICT Policy Review Process

**The National Integrated ICT Policy Green Paper Process**

| Framing Paper Gazetted April | National Integrated ICT Policy Green Paper Gazetted January 2014 | Discussion Paper to follow | National Integrated ICT Policy White Paper |
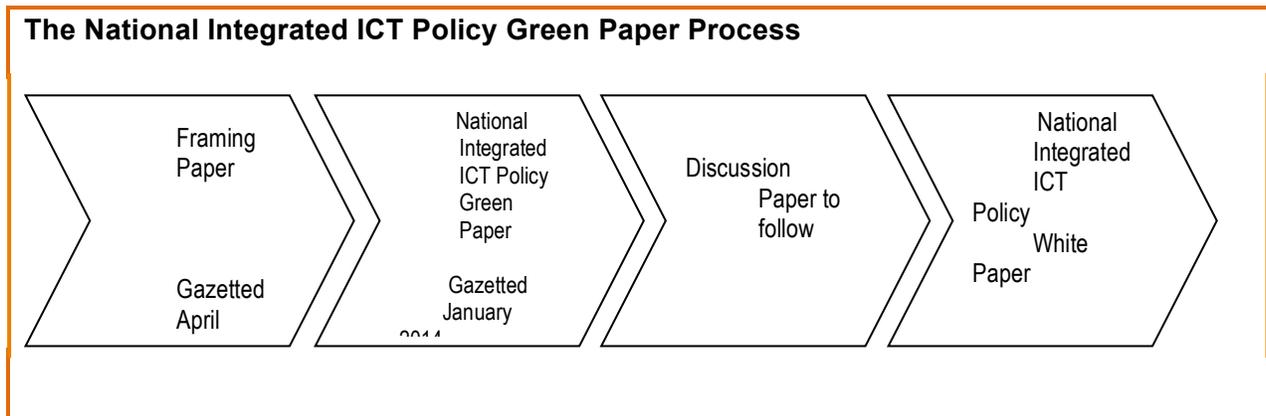
This is an overview of the National Integrated ICT Policy which was gazetted on 24 January 2014, Gazette No. 37261. A copy can be obtained from www.doc.gov.za

The Policy Review Process started with the appointment of the ICT Policy Review Panel in 2012. The release of the ICT Review Framing Paper in April 2014 kick-started public discussions on the relevance of existing policy objectives and principles, in developing new policies for the sector. The next stage is the current phase of the release of the Green Paper for public discussion on the status quo of the communications sector and consideration of what needs to be done to ensure a sector that is responsive to the needs of South Africans. The Discussion Paper, that will follow the National Integrated ICT Policy Green Paper, will outline different options in addressing the convergence of technologies and a policy and regulatory structure that will be used to extend services to all and provide for the opening of the sector to new innovative services. The White Paper will be Government's formal policy position on key issues relating to Information and Communications Technologies (ICTs). The National Integrated ICT Policy White Paper will provide the framework for new ICT legislation.

## 2. Background and Context for the review

There are three White Papers and one Green Paper that were produced since the democratisation of South Africa, namely:

- White Paper on Telecommunications Policy (1996);
- White Paper on Postal Policy (1998) and;
- White Paper on Broadcasting Policy (1998).
- Green Paper on e-Commerce (1999)

It is more than 15 years since these policy reviews took place. In the meantime markets have changed as a result of the entry of new players, technological developments and new thinking in how services can be

delivered and used. Previously, the three sectors were regulated as silo sectors of telecommunications, broadcasting and postal services. Convergence of technologies has since blurred the boundaries between the sectors. The same infrastructure can be used to deliver voice, video and data. Different services can now be received using the same end-user devices. Interestingly, the policies had predicted that there would be a need for a review to accommodate the effects of convergence and to facilitate the widespread use of new innovative services.

The review process also considers whether the objectives outlined in the existing policies are still relevant. Some of the questions to be answered by the process are: Did the original objectives or goals and regulatory frameworks address all the needs? Are the objectives or goals still relevant, given changes in society in the past 15 years and considering technological advancements that have taken place?

## 2.1 Drivers of change in the ICT sector

There have been a lot of changes in recent years due to the rapid expansion and fast-paced developments in technology and the emergence of new media as a result of the Internet. Both homes and offices have been transformed. The tools and machines used barely 20 years ago, such as Telex machines, floppy disc computers, tape cassettes and colourless computers devoid of graphics and of course without a mouse are no longer in use. With the entry of broadband in the past 10 years, the ICT landscape has changed dramatically and the Internet is now a major medium of communication. The SA population has grown from 37.8 million to 51.7 million between 1993 and 2012 and in that time households numbers increased by 4.6 million to 14.5 million. These are consumers of services that must be reached, which will require the extension of infrastructure. Statistics show a correlation between access to services (like fixed line broadband and computers) and high annual income. Breaking these figures down into households, Indian and White households have access to the greatest number of ICT goods and services. Interestingly, mobile phone access across population and income groups is high.

Mobile technology, broadband, digital television, smartphones, the cloud, tablets, and new media technology are all recent developments in the market. These changes have serious implications for policies and legislation that were written prior to these developments, and need to be adequately reflected in current policy and legislation. Further disruptive technological changes are on the horizon and these must also be considered in developing flexible policies that respond to technological changes.

One of the core considerations is the changing use of ICTs and the role these technologies play as enablers in the different spheres of human endeavour. Over the past three decades the world has accepted the transformative power of ICTs. The implementation of different strategies to diffuse the availability of these technologies has transformed countries, societies and activities of individuals. The International Telecommunication Union (ITU) estimates that a 10% increase in broadband penetration will result in an increase of up to 1.38% in the Gross Domestic Product (GDP). This will create jobs. The implementation of e-government, e-commerce and online transactions will improve service delivery and open new avenues for the end-user equipment manufacturing sector. Therefore, a coordinated roll-out of ICTs promises a realistic opportunity to bridge the digital divide and help deal with the inequalities and unequal access to services in the country.

Best practice in the fast moving technological revolution that we are experiencing globally, is to consider doing regular policy reviews, ideally at least every 5years to make sure that the objectives outlined in the policy are being implemented, and also to look at gaps and challenges as a result of the introduction of new technologies.

Convergence is playing itself out in the following manner:

i)      *Technological convergence* – this relates to the tendency of technological systems to develop in a manner that leads them to performing the same tasks. In this context it refers to the process in which previously separate technologies such as telephony, data and video can now be saved,

transmitted and received using the same devices. Technology convergence is of particular interest to policy makers and regulators as it changes the nature of services allowing an operator who was licensed under one category to be able to do things that would have required different category licences in the past.

ii) *Platforms, Applications and Services are converging* - There are three major technological developments that influence the communications landscape. They include the shift to Internet Protocol (IP) -based technologies that have affected the cost of networks at the same time offering opportunities for innovation; deployment of fibre optic technologies that have increased the speed and size of data that can be transmitted and lastly, use of wireless technologies.

There are activities that government must undertake to enable and drive the uptake of such converged technologies. Policies that hinder convergence must be reviewed. Sector specific regulations that distort competition preventing the entry of new converged services must also be removed. Government itself must reap benefits from the convergence of technologies through the deployment of modern infrastructure and services to offer public services and communication channels to citizens. The *convergence of Internet and Media* has also taken the sector by storm following the ITU requirement for countries to switch over to digital platforms. South Africa is preparing for the Digital Age of broadcasting in which the number of broadcasting channels will multiply six-fold.

This convergence offers many avenues for our country to use broadcasting and broadband capacity to meet citizen's needs. This could mean services broadcasting in all eleven languages, the deployment of ICTs to transform the process of learning and teaching and infusion of technology in the delivery of health and other services.

Convergence is the main reason why the policy review could not be postponed any further. Current policies are based on traditional structures premised on distinct broadcasting, telecommunications and IT markets. These markets are based on the existence of distinct industries around telephony, point-to-multipoint broadcasting services and mobile telephony services. There is general consensus that technological changes that are apace must be factored in order to produce a policy and regulatory framework that is wholesome and treats all service providers in a similar and transparent manner. There are limitations of the convergence of technologies that should be taken into account in the process.

There are questions to be asked in the process of *enabling convergence in policy and regulation* and they include:

- What should the policy and regulatory approach be to convergence of technologies? How can South Africa formulate laws that area flexible enough to adapt to the rapidly changing environment?
- How well can the present policy objectives deal with the future? Must they be fine-tuned for the future converged environment? Are there elements that impede convergence and the emergence of new converged services in the current policy and regulatory environments?
- There is a need to redefine the market structure taking into consideration that these markets were defined as isolated and distinct in the past. What new market structure should replace the current structure?
- What are the implications for the regulations that are targeting monopoly pricing and virtual exclusion when convergence encourages integration and use of one platform to deliver integrated services?
- What are the implications for content style regulations that focus on content and ownership issues?
- How must policy and regulation deal with like services in situations in which these services attract different degrees of regulation depending on their transmission method?
- How would a video-on-demand service anchored by a newspaper be classified and how should they be regulated?

- Why would broadcasters continue to attract a heavier set of obligations and regulations when similar or like services can be transmitted through the Internet, competing with them and attracting little or no regulations at all.
- Licence categories are tied to obligations like universal services and access. How would these be administered in a fully converged environment?

The policies under review have made great strides to deal with the legacy of the past in which access to infrastructure and services was on a racially skewed basis. The rapidly increasing digital divide threatens to reopen the fault lines of the past and national policy should ensure equitable treatment of all South Africans. Hence there has to be a review of current policies to ensure that an inclusive information society is realised.

## 3. Guiding principles for the review

The Framing Paper, as gazetted in April 2013 (Gazette No. 36408), presented to the public a number of principles which were to support the Policy Review process. The principles were drawn from the policy objectives of the current policies. More than 23 responses were received from the public, industry and organisations. Notably, there was overwhelming support for the Policy Review initiative as well as the principles presented. The ICT Policy Review Panel is unanimous that were the market to be left to its own devices, there would be some serious developmental failures as some sections of the South African population still do not appeal to market forces because of their economic and geographic profile. Consequently, the ICT Policy Review Panel rejected any suggestion that sought to propose a market-led approach as opposed to a policy and rights-based approach to a new communications framework.

Most of these objectives and principles are derived from rights enshrined in the Constitution. However, the Panel amended some of the objectives and principles in line with suggestions where it felt appropriate, and retained and fine-tuned others. The following new principles are presented for further consideration:

1. South Africans have a right to freedom of expression;
2. South Africans have a right to access a diverse range of information, opinion and news of relevance to their communities and lives;
3. South Africans have a right to a secure, quality and affordable communications infrastructure and services;
4. South Africans have a right to benefit equitably from the ability of the communications sector to facilitate social development and improve the quality of life of individuals and communities;
5. South Africans have a right to the creation and dissemination of content that celebrates their cultural heritage in languages of their choice;
6. South Africans have a right to equitable universal access to communication infrastructure and services;
7. All sectors of the population have a right to equally enjoy and benefit from communications services;
8. South Africans are entitled to communication services that reflect, respect and uphold community standards and values in accordance with the constitution;
9. South Africans have a right to privacy and to protection of personal information;
10. Government has a responsibility to maximise the overall public benefit derived from the use of public resources;
11. South Africans are entitled to a communications sector that facilitates innovation, fair competition and equitable treatment of all role players;
12. South African citizens are entitled to consumer protection right with regards to communication services;
13. South Africans have a right to an environment that is not harmful to their health or well-being; and
14. Policy must recognize the need to protect children from potentially harmful content.

There were some additional objectives suggested by respondents to the Framing Paper. Among these were the following:

1.  South Africans have a right to an inclusive, transparent, accessible and technology-neutral policy making and regulatory process that promotes stability and fosters a knowledge based society;
2.  South Africans are entitled to a communications sector that prioritises and promotes public interest, independent regulation, fair and equitable treatment of all role players, and net neutrality;
3.  All South Africans are entitled to a secure cyber environment in which all infrastructure, network and service providers work together to maintain the highest standards of security;
4.  South Africans have a right to a three-tier system of broadcasting providing for public, community and private ownership; and
5.  South Africans have a right to access public information through the communications services in order for them to be active participants in political and social life, as well as in the construction of knowledge-based society.

## 4. Purpose of the National Integrated ICT Policy Green Paper

The National Integrated ICT Policy Green Paper will be used to canvass opinions on the various aspects of the communications sector that need to be reviewed and possible approaches that should be adopted. The National Integrated ICT Policy Green Paper asks how the Information and Communications Technologies can be used to advance the developmental agenda.

It examines those elements of the communications policy and regulatory environment that have either not been achieved, or only partially achieved. In some cases, policies were successful in resolving the challenges of the past, but now need to be reviewed to meet the demands of a new technological age.

The Green Paper presents a detailed review of the broadcasting, postal, telecommunications, e-government and electronic commerce markets and developments in the sectors since the adoption of the current policies. It deals with issues of investments in the sector, the skills gaps and issues around human resources development. It looks at institutional arrangements and different responsibilities of various organs of state and regulatory agencies. It then identifies gaps, barriers and bottlenecks that must be resolved in the future. It asks questions on how policy should be framed in order to deal with the various issues that must be subject to policy determination.

## 5. Current State of the ICT sector and emerging policy issues

The assessment of the current state of the ICT sector within the context of the policy objectives as well as the evaluation of the status quo in respect of the markets – their size, dynamics and specific indicators is crucial as it provides an indication of the issues to be addressed moving forward. These indicators include the economic and social indicators. Additionally, this also allows the review process to highlight the current gaps as well as challenges.

### 5.1 Enabling environment for Electronic Communications

The 1996 White Paper on Telecommunications Policy sets out specific policy objectives in relation to 10 main areas: telecommunications and development in South Africa; market structures in the telecommunications sector; ownership, investment and financing; economic empowerment of historically disadvantaged South Africans; regulation of the telecommunications sector and radio frequency spectrum; affordability and tariff setting; the equipment supply industry; human resources for the sector; regional and international co-operation; and legislative reforms. In this review, each policy objective envisaged in the White Paper on Telecommunications is reviewed and assessed against the current status.

The state's vision for telecommunications is one that balances the provision of basic universal service to disadvantaged rural and urban communities with the delivery of high-level services capable of meeting the needs of a growing South African economy. Mobile connection penetration grew from 0% in 1993 to 136% in 2013; fixed-line penetration grew from 9.2% in 1993 to 10.7% in 1998, but has since then steadily declined to 7.9 % in 2012. Both internet users and computer penetration have witnessed some

growth since 1993; however the cost to communicate and high prices of computers have been an inhibitor.

The Electronic Communications Act came into effect in 2005 replacing the vertical licences with a horizontal licensing scheme that separated infrastructure licences from electronic services licences. The Independent Communications Authority of South Africa (ICASA) was required to convert the licences. This change was meant to open-up the market to new entrants and to introduce pro-competition measures to facilitate facilities-leasing by competing operators, the interconnection of different networks and the regulation of operators with significant market power in order to discourage position abuse and discriminatory practice.

The pro-competition provisions of the Electronic Communications Act of 2005 have not yet been implemented. The definition of undue preference and undue discrimination has not yet been done. Relevant markets have not been defined. The methodology to be used to determine the effectiveness of competition in the various markets and market segments has not been done. The local loop unbundling exercise is yet to be completed. Many service providers cry foul about the delays they experience on requesting interconnection agreements. They also complain that operators with Significant Market Power impose minimum targets that are not realistic when they seek to interconnect.

There are 4 mobile operators currently licensed and 1 Mobile Virtual Network. Two mobile operators account for more than 80% market share. There are 2 fixed-line operators operating at a retail level. One provider only offers wholesale services. One fixed-line operator accounts for almost 80% of the fixed-line market. There are hundreds of licensed service providers. The fixed-line broadband market is not growing whereas the mobile broadband market is growing rapidly and is expected to grow even faster once the needed spectrum is assigned.

The White Paper had also prioritised the establishment of a Universal Service Agency to promote the goal of universal access and universal service and assist the DOC and ICASA in monitoring and addressing these gaps. The Agency has been established; however its performance level is unsatisfactory. A Universal Service Fund was put in place as required by the policy. Although the USF has been gathering revenue for many years, very little of it has been used to subsidise universal service and access.

In line with the policy, Universal Service and Access Obligations (USAOs) were given to operators to also address universal service gaps. However, many areas suffering from the lowest teledensity did not benefit from this initiative and even more, on a comparative basis, actually fell further behind other previously under-serviced areas addressed by such efforts. The issues of affordability and provision of universal services present the greatest challenges in rolling-out services to reach all South Africans.

## 5.2 Broadcasting Services

The 1998 White Paper on Broadcasting Policy set policy objectives that would drive the development of the South African broadcasting system. The broadcasting environment is regulated in order to safeguard public interest, transform the sector so that collectively viewed it is owned and managed by people from all South African backgrounds, to ensure the viability of the private and public broadcasting sectors, to provide for content diversity and diversity of voice and choice for audiences. The legislative and policy environment sought to foster a three-tier broadcasting system, a licensing and regulatory function of an independent regulatory authority in line with section 192 of the Constitution, and service provision by broadcasters.

The policy objectives articulated in the White Paper on Broadcasting included policy, legal and regulatory aims; digital broadcasting; a multi-channel distribution system; ownership and control; financing of productions in South Africa, and the establishment of a single regulator for broadcasting and telecommunications.

Within the context of the ICT Policy review, it is important that each policy objective envisaged in the White Paper on Broadcasting Policy was reviewed and assessed against the current status.

### Independent Broadcasting Authority

The Independent Broadcasting Authority (IBA) was merged with the South African Telecommunications Regulatory Authority (SATRA) to form ICASA. However, the position of broadcasting regulator needs to be reconsidered given convergence and the fact that the regulator has also assumed the powers of telecommunications and postal regulations since 2000. Issues that need to be considered in the review process include:

- Whether the institutional model and funding of the regulator responds to its mandate to regulate the postal, broadcasting and telecommunications sectors.
- There needs to be an assessment of roles and responsibilities of other actors within this space, such as the Complaints and Compliance Committee (CCC), the Broadcasting Complaints Commission of South Africa (BCCSA) and the Advertising Standards Authority.
- Coordination and integration across government and public entities, as well as Parliament, need to be examined. How do policy making government departments such as the Department of Communications (DoC), Department of Trade and Industry (dti), and Department of Arts and Culture (DAC) coordinate their activities and align them in such a way that there is high policy impact?

*Empowerment through the transformation of the broadcasting sector-* This objective has been partly achieved, though issues of concentration in the sector are still a challenge. The issues of transformation of media ownership, diversification and the prioritisation of historically disadvantaged individuals are key elements in the licensing process. Legislative and regulatory instruments such as BBBEE and Employment Equity are in place, and industry players conduct their businesses in accordance with the current policy framework. ICASA has to ensure that licences comply with BBBEE Codes of Good Practice. The ECA stipulates a minimum Historically Disadvantaged Individuals (HDI) ownership of 30% for broadcasting entities and this target has been achieved, especially in the sound broadcasting sub-sector.

*Reach and universal access-* Substantial progress has been made with respect to expanding the analogue terrestrial television broadcast network from 60% of the 'population reach' in 1998 to over 90% population coverage in 2012. In the same year the public broadcaster's SABC 1 and SABC 2 were reported to each have population coverage of 91.2% and 92.5%, respectively with SABC 3 having 82.1% coverage. There remains a segment of the population that does not have access to television but this gap has been substantially reduced from 40% of population in 1998 (as reported in the White Paper) to less than 10% in 2012.

### Unfulfilled or partially fulfilled policy objectives

In summary, strides have been made in the implementation of a number of areas in the broadcasting space in line with the policy. However, the following remain unfulfilled or partially fulfilled amongst others:

The provision of diverse programme content is not to the extent envisaged. The delivery of services in all official languages was limited by technological capability. The rollout of regionally relevant services is yet to take place. Multichannel delivery systems are not in line with policy of prioritising South African content and ownership. Competition in the delivery of terrestrial and satellite services is still a challenge. Terrestrial providers have not given priority to services reflecting the linguistic make-up of the area to be served. Satellite providers should reflect South Africa's linguistic profile. Signal Carriers must furnish capacity to provide Internet TV throughout the licensed area as is practical. The regulator is still in the process of establishing a regime for the regulation of signal distribution tariffs. Use of broadcasting to support the provision of education and information to the South African population has been limited.

Generally, it can be concluded that policies have not been implemented in full. In addition, there is no effective monitoring and evaluation of progress in delivering policy. The importance of prioritising local content production should be the key focus in the transformation of the industry, and the SABC needs to be repositioned, particularly looking at the effectiveness of the separation of Commercial Broadcasting Services and the Public Broadcasting Services. The convergence of the sector also calls for the introduction of policy and regulations that conform to the new environment.

**5.3 Postal infrastructure services and content**

The 1998 White Paper identified postal services as the most basic and common means by which messages can be communicated and goods delivered. It stated that postal services are a basic link serving the entire population. The postal services also serve as an important medium of communications for business and commerce. The Government committed to facilitating the growth and development of the sector and to ensuring the provision of universal and affordable postal services to all South Africans, irrespective of race, gender, class, age or geographical location. The overarching goal of the policy framework was to ensure a more accessible, equitable, efficient, and effective postal service.

The policy presented various implementation strategies that were designed to meet the basic needs of all citizens, given the limited resources available. The objective was to balance the provision of basic universal postal services to disadvantaged rural and urban communities, with the delivery of services capable of meeting the needs of a growing South African economy. Interestingly, the majority of the policy objectives prioritised in the White Paper have been achieved. The following are some measures that are critical for the success of the postal services market into the future:

- Fulfilling universal service obligations will ensure that all citizens have access to basic postal services
- In the face of competition, quality of service and customer experience, are paramount.
- Attention needs to be paid to security of the system to ensure that letters, parcels and other postal items are not pilfered, damaged or lost.
- Strict enforcement of the law with respect to unregistered and unlicensed operators cannot be overemphasised.
- Increased efficiency through technological changes and quick responses to technological innovation, such as investing in parcel-sorting equipment, is important.
- Develop integrated, coordinated relationships and plans between various stakeholders trying to achieve similar objectives, e.g. GCIS, Thusong centres, SAPO, USAASA, etc.
- As a labour intensive sector, nurturing a good relationship with the unions is critical.
- Developing clear policy objectives for the Post Bank is paramount in repositioning the Postal Bank to play a role in serving those without banking facilities.

This green paper solicit, through questions, inputs from the public on measures to implement in order to take the Post Office to the next level in the new policy regime

**5.4 Digital Information Services; e-Services and Cybersecurity**

The 1999 Green Paper on e-Commerce and the Electronic Communications and Transactions Act (ECTA) of 2002 highlighted the major areas of legislative and policy interventions in respect of e-commerce, cybercrime and cybersecurity. The ECTA further provided for the development of a three-year national e-strategy covering issues such as e-government services, roles and responsibilities, coordination, monitoring and implementation of the national e-strategy, research and development, as well as international coordination. Although there is no national e-strategy developed or approved by Cabinet, there are a number of ICT sector strategies under the umbrella of e-strategy that have been developed in the past few years. Among them are "Info.Com 2025"; the South African    World    Summit on the Information Society (WSIS) input; the 2007 Information Society and Development (ISAD) Plan, the National Development Plan (NDP) and other e-strategies developed by various government departments

and agencies. These include the Departments of Home Affairs, Science and Technology, Trade and Industry, Arts and Culture, Public Service and Administration and Health. Research indicates that South Africa is yet to develop a strategy that will impact on public sector services in terms of efficiency, ease of access and ease of use. There are numerous silo approaches that hinder planning for networks and services on a government wide basis and therefore costs of technology roll-out are duplicated. Lack of Government coordination at national, provincial and local levels emerges as the greatest obstacle to an integrated strategy to deliver services using electronic means.

With respect to cybercrime, the ECTA of 2002 provides for the building of trust and confidence in network infrastructure to ensure a secure information society. The law enables the authorities to tackle all basic types of cybercrime offences as well as operations and prosecution. The ECTA defines conduct that constitutes cybercrime, and establishes several procedures to enhance enforcement of the Act by law enforcement authorities. Online consumer and data protection in South Africa is currently based on the ECTA, the National Credit Act (NCA), the Consumer Protection Act (CPA), and the Protection of Personal Information (POPI) Act.

E-commerce in South Africa has grown significantly in the past several years with reports showing that in 2010 alone, R2 billion was spent in online shopping and in 2011 the number was targeted to reach R2.8 billion, a 30% increase. South Africa is considered a leader in e-Commerce development in Africa. Based on a survey conducted by MasterCard, South Africa takes the lead in terms of the 54% respondents who say that they usually use the internet for online shopping. This percentage is twice the regional average.

However, in comparison with developed markets such as the UK, USA and South Korea, South Africa has a long way to go in the development of its e-commerce sector. Amongst other factors, South Africa is lagging behind in terms of internet penetration, delivery infrastructure, competitive retail markets and credit card usage. The increase in the penetration of smart phones has propelled development in the mobile e-commerce space. However, it remains in its infancy stage, as users are not yet comfortable or significantly familiar with m-commerce. The MasterCard survey of 2012 illustrates that only 12% of respondents used their mobile devices to make a purchase online.

Building trust and confidence in the ICT infrastructure is pivotal for an emerging online marketplace. The promotion of trust and confidence depends on a number of factors that include the application of information security standards, definition of cybersecurity organisations and education of society as a whole, from internet professionals to ordinary internet users.

A cybercrime prevention framework which tackles the two types of cybercrime offences is vital to deal with cybersecurity threats and attacks. The framework must address both the new forms of offences which include illegal access, illegal interception, misuse of devices and the old forms of offences, which include computer-related forgery, fraud, child pornography etc. South Africa is listed in the top-five countries list, clearly indicating that cybercrime is already a serious threat. For phishing, South Africa is number two; only Netherlands has a higher rate of phishing attacks. For malware, South Africa is number four. For spam, South Africa is not in the top five country list.

In the e-Government space, government has made strides to ensure that citizens have access to services. To date 355 multi-purpose community centres were established, to give rural communities access. Other initiatives include the creation of 800 public-information terminals, connecting more than 80% of health centres though ICT and creating an educational portal called Thutong to assist teachers and learners in accessing educational information.

The government has launched a number of projects to enhance G2G (government –to-government) services, such as systems for financial management (Persal), personnel management (Bas) and supply-chain management (Logis). Examples of other systems are those for police case-management, motor registration, welfare pensions, and unemployment insurance and housing-sector subsidies. The

Independent Electoral Commission developed an electronic-procurement system that enables open bidding for government tenders and aims to prevent corruption.

In terms of cybercrime, issues that require policy interventions include:

- Measures to deal with offenses that affect the confidentiality, integrity and availability of computer systems and computer data, including illegal access, illegal interception, data and system interference, misuse of devices;
- Offences committed by means of computer systems, e.g., computer-related forgery and fraud, child pornography and offences related to infringements of copyright and related commercial rights;
- Harmonisation of national laws and addressing prosecution bodies, and the capabilities required;
- Substantial training for public prosecutors and police force is necessary; and
- Building trust and an environment that facilitate the exchange of information between government and private sector is problematic.

**5.5 Information Technology Sector**

The Information Technology (IT) market has maintained a degree of stability in spite of the effects of the global financial crisis. However, the prevailing uncertainty surrounding the global economy may well affect the future of the IT market. South Africa, in spite of its solid political and regulatory environment, is not yet leveraging the potential benefits associated with the ICT sector, according to a World Economic Forum Report. This is due to the lack of basic skills in large sections of the population, the high cost of accessing ICT services and insufficiently developed infrastructure, among other things. As a result, the economic impacts accruing from ICT in the country remain patchy.

The South African IT industry was valued at R77.1 billion in 2011 and is expected to grow at a compound annual growth rate (CAGR) of 8.6% to reach R116 billion in 2016. There were close to 2000 companies in the IT industry as at the end of March 2012. The IT services submarket is the largest, accounting for 51%, followed by hardware at 31%, and packaged software at 18% of the total IT market. The hardware sub-market is driven largely by storage and networking services. Cloud computing is expected to drive future growth in the IT services sub-market.

When it comes to software, South Africa is said to have competitive advantage in embedded software design and development. Software testing and piloting systems and applications are growing markets in South Africa. Local companies also offer niche manufacturing facilities for high-end technology solutions. The area of systems management is also growing on the back of cloud computing. The growth of the subsector is inhibited by lack of skills, especially in business intelligence, cloud and systems management. Software piracy accounts for about 35% of total software. Government advocates for a free and open source software (FOSS) policy.

The growth projections of the IT market could be higher were it not for certain factors that seem to constrain it, including the cost sensitivity of customers, low expenditure by the public sector, market maturity, and bigger companies sourcing directly from the original equipment manufacturers (OEMs).

The key success factors for the future IT industry are dependent on the following:

- Ubiquity – the extent to which consumers and enterprises have universal access to digital services and applications.
- Affordability – the extent to which digital services are priced in a range that makes them available to as many people as possible.
- Reliability – the quality of available digital services.
- Speed – the extent to which digital services can be accessed in real time.

- Usability – the ease of use of digital services and the ability of local ecosystems to boost adoption of these services.
- Skill – the ability of users to incorporate digital services into their lives and businesses.

Therefore policy interventions for the future should be informed by the factors above. In public sector issues on interoperability, elimination of duplication IT security and economies of scale are key to government achieving its goals of digitising the public sector.

## 5.6 Promoting investment in the ICT Sector

Investment in infrastructure as well as skills development is at the core of the development of the ICT sector. The deployment of reliable and easily accessible infrastructure has the potential to promote competition, while facilitating the achievement of the Millennium Development Goals (MDGs) and the information society. A key question for the ICT industry is how to improve and sustain investment in the ICT sector. Moreover, the success of any industry can be judged on its ability to attract and sustain investment, both domestic and foreign, particularly Foreign Direct Investment (FDI). This chapter considers investment trends, the driving factors and bottlenecks, as well as strategies to induce and sustain investment in the ICT sector. For government, investment in the ICT sector is a fundamental policy goal, alongside transformation, diversity, universal access, and Broad-Based Black Economic Empowerment (BBBEE).

The past 20 years have seen the ownership of telecommunications service entities transforming into a major industry sector that offers considerable investment opportunities to private investors both domestically and internationally. The BMI-T has calculated that the cumulative CAPEX since 1993 has been R132,4bn in mobile and R101.8bn in fixed networks.

There are several notable examples of foreign direct investment in the telecommunications networks in South Africa. These include the UK's Vodafone's investment in Vodacom, India's Tata's investment in Neotel, Japan's NTT's investment in Dimension Data, and the continued investment by Saudi Oger in Cell C. The regional and international investment in the SEACOM, EASSY and WACS submarine cables has benefitted the local economy. These investments are not exclusive to South Africa though. Government has committed large sums of money, to roll out infrastructure, including in the ICT sector.

Research shows that the building blocks in the form of policy and incentives seem to be in place in South Africa to sustain investment in the ICT sector. The critical challenges are coordination, implementation and regular monitoring. The critical question remains: How can we ensure that future policies promote investment? The public would have to contribute in providing solutions for the future.

The Global Competitiveness Report 2012-2013 cites an inadequately educated labour force as one of the greatest obstacles to doing business in South Africa. This observation is shared in the NDP which recommends that Government should "outline interventions to promote ICT diffusion and adoption such as e-literacy programmes to stimulate demand, ICT skills development and institutional capacity-building. Investment in the skills front is imperative for the country to reach its goals".

## 5.7 Universal Access and Service

One way of ensuring access to services by the majority of citizens is through universal access and service (UAS) programmes. UAS refers to policies adopted by governments to ensure citizens have equal and fair access to a point of communication. While traditionally UAS programmes were aimed at providing fixed telephony, recently the focus has shifted to mobile telephony, Internet and broadband (fixed and wireless) services.

Generally, there are three pillars to a UAS policy:

- Affordability – communication services need to be provided at affordable prices;

- Availability –communication services should be provided whenever and wherever they are needed, including in remote and rural areas; and
- Accessibility – all citizens should be able to use communication services, regardless of location, gender, disability or any other personal characteristics.

USAASA contends that the above pillars must be expanded to include 'awareness' of the use and benefit of communications. Another dimension is that of 'ability' to use ICT services, indicating the importance of relevant content and applications to stimulate demand.

USAASA's 2009/10 annual report indicates that up to that point, the agency had assisted in the development of 362 cyberlabs and 154 telecentres, in addition to the facilitation of nternet connectivity to schools and access centres and further education colleges. In addition, it aims to establish 1 250 new access centres by 2014. The Universal Service Fund (USF) has been instrumental in the delivery of these access points. However, limitations and challenges within USAASA calls for government to put in place measures to safeguard the entity and ensure its ability to deliver its universal mandate to the citizens.

The experience of implementing UAS, coupled with lessons from international benchmarking, has highlighted the importance of the following factors:

- Maintenance - Due to past experiences within the existing community of telecentres and cyberlabs, it has become even more important to consider sustainability through support and maintenance of universal service access points beyond the build-out phase. The true value and success of a communications access point is the long-term continued utilisation and successful operation and support of the facility by the intended beneficiaries.
- Training - Very often many potential users are, at least initially, intimidated by new technologies. To continue supporting a growing user base of the services available in telecentres and cyberlabs requires a fair amount of investment in attracting, retaining, and re-skilling customers and users.
- Local partnerships - Working with local partners enhances the level of trust and support the community attaches to universal service and access projects.
- Diversity of services - The notion of providing a bundle of services at a single outlet tends to be a good practice as it builds an opportunity for beneficiaries to achieve a more diversified product range from a single facility.

**5.8 Skills Development for the future**

Building a knowledge economy and an information society requires new capacities, such as the ability and use of ICTs to create and develop innovative services, programmes, applications and devices. As the world moves rapidly into the digital era, it is imperative that all South Africans are equipped with the necessary skills to facilitate self-reliance, social cohesion and employment. Chapter 11 addresses the issue of human resource capacity development to build a knowledge economy and an information society.

**5.9 Institutional arrangements**

Policy making for a fast-paced sector requires a number of balances to ensure that the activities of different players are coordinated towards achieving definite ends. The roles and responsibilities of these different players are defined in current policy and legislation and are intertwined, requiring the different institutions to act in collaboration to achieve specific policy objectives outlined in the range of laws governing the sector In the ICT sector.

There are four responsibilities to be shared in line with the policy frameworks that have been put in place.

- The first is the responsibility to define the final goals to be achieved in the interest of citizens. Government, which produces national policy and introduces bills in Parliament, is the clear driving force in the formulation of the policy ends.

- The second responsibility is choosing the means to deliver the desired ends. The regulator, ICASA and government are the key players. The regulator determines the regulatory regime in accordance with the legislation, licenses operators, imposes licence obligations, and interacts with the public. Government issues policy directions from time to time in accordance with legislation, and drafts amendments to the laws for parliamentary consideration.
- The third responsibility involves enforcing compliance by everyone to the regulatory and licensing schemes. The regulator establishes the rules of the game and is the lead agency empowered to take action in cases of violation of licence conditions or regulations.
- The fourth responsibility is the policy review, such as the current process that involves all role players. Periodic reviews are required because the effectiveness of policy may depend on many aspects, including market conditions that can change rapidly, policy ends that do not take into account prevailing conditions, disruptive technologies, or events or regulations that are not sufficiently strong to manage the sector. The judiciary reviews policies, legislative provisions and activities of various role players in situations where concerned participants resort to the courts for redress.

Section 43 of the Constitution vests the legislative authority to pass and amend laws with Parliament. Parliament therefore plays a critical role in translating major policy principles into legislation. Parliament, acting through the Committees on Communications, holds the government, regulatory authorities and other public entities involved in the sector to account in terms of their annual performance plans, budgets and audits.

Research indicates that not all the objectives contained in law, the major statements of policy, find reflection in the strategic plans and programmes of government, the regulator and licensed operators. Those objectives that do not find reflection in the plans are subsequently not monitored leading to them falling through the cracks. Parliament bears the primary responsibility of monitoring the implementation of legislation. Government bears the ultimate responsibility that the public service develops plans to implement all legislative and policy objectives and that such plans are monitored. The regulator bears responsibility to undertake all the legislated provisions and their enforcement in relevant circumstances. Public entities are products of policy and must at all time implement national policy and associated legislation.

Other institutions playing an important role in the sector are the Universal Service and Access Agency of South Africa (USAASA), and the .ZA Domain Name Authority. The roles of these two organisations are discussed in the National Integrated ICT Policy Green Paper.

Research undertaken in the course of the review process indicates that the objectives set out in policies have been implemented to varying degrees. Research suggests that a number of the key issues to be dealt with regarding institutional arrangements would include: alignment of the different roles and institutions in developing and implementing policy, appointment procedures for the Boards of state owned entities and the Regulator that involve Parliament and the Executive, funding mechanisms, the capacity, efficacy and efficiency of the regulator; the oversight and accountability of the regulator med by the questions posed.

## 7. Conclusion

Finally, the National Integrated ICT Policy Green Paper essentially asks questions on how the future policy framework can ensure that the country is able to meet is objectives and reap the full benefits of convergence, with the ultimate aim of bridging the digital divide. The focus is on how best can the policy framework ensure that South Africa's competitiveness globally is strengthened, achieve Universal Service and Access to infrastructure and services by all South Africans, transform the sector to ensure diverse ownership and management, ensure the development and dissemination of local content, address competition related issues, build the required skills and build an effective regulator, etc. The list of issues identified above is not necessarily exhaustive. Stakeholders are encouraged to identify other issues that the policy framework should address.