

South Africa in the Global Information Age: e-Skilling the Nation for Equitable Prosperity and Competitiveness

Abstract

Africa is undergoing an information revolution driven by the demand for power and global participation. This endeavor is particularly coming of age in South Africa where the government embarked on a mission to better the life for all through an enabling and sustainable world class information and communications technologies environment. With this in mind, the paper looks at efforts of the South African Department of Communications (DoC) to optimize the pace and extent of addressing South Africa's development challenges by looking at the components of the National e-Skills Plan of Action (NeSPA). The project is the result of a two year consultation and work study process that aims to coordinate existing and new collaborative approaches in e-skilling for more equitable prosperity and global competitiveness in the information society and knowledge economies. This journey found that there was a deep well of energy ready for action across the breadth of Government, Business, Education and Civil Society (including organised Labour) and that the need for collaborative network architecture across the country is of paramount importance to establish e-skilled knowledge production hubs. By launching this plan, South Africa has also placed itself in a continental leadership position.

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Introduction

The information age is having a considerable impact on the South African society. One area where change is becoming apparent is the growing number of previous disadvantaged individuals who are gaining literacy in the use of computers. This situation is a far cry from ten to fifteen years ago, when computer literacy was basically a right of the more affluent and higher class groups. But with the South African education system undergoing reforms and the introduction of more computer-based teaching programs, a new era is dawning. Education not only centers on the family, but is also entrusted to schools, colleges and universities that make up our education systems. Communities and nations all develop on the foundations of education. Providing a high-class education is the duty of the government to ensure that young people are able to meet the challenges of the twenty-first century and explore the opportunities that are presented to them. Just as well, young people should be encouraged to grasp these opportunities and use them to their own and communities' advantage. What is the role of the government in the obtaining of this knowledge? For one thing, the government has to make sure that all citizens have access to the information age; and governments are tasked with providing an enabling environment so that its citizens and especially the younger generation can acquire the skills they need to compete in the Internet economy. It is the responsibility of government to provide quality education and training for all, to ensure that no child is left behind. South Africa is a country with many socio-economic obstacles and Information and Communication Technology (ICT) is low on the list of priorities. However, in order to provide quality education for all, it is imperative that the government acts decisively to promote digital access and increase its supply of scarce ICT skills. If the government fails to achieve this task, it will run the risk in falling

further behind its neighbors, and its young people may lack the skills they need for life and to compete in the digital age. The paper first discusses the basic ideas behind an information society, how information society encompasses much more than policies on infrastructure and services alone, and the need to integrate policy with broader macro-economic and developmental policies. Second the capacity for building an information society in South Africa is examined through the establishment of the Presidential National Commission (PNC's) strategy towards Information Society and Development. This framework was launched under the leadership of Thabo Mbeki, the deputy-president in 1996. The gist of the paper centers around the concept of e-Skills; and the initiative of the South African government by way of the e-Skills institute (e-SI), to harness the potential of ICT across the full society and addressing major socio-economic challenges in delivering equitable prosperity and global competitiveness. For the economy in developing countries to prosper it is necessary that sophisticated ICT technologies are used to support business flexibility. This section looks at the way in which the economy can be advanced by introducing independent but linked e-Skills Knowledge Production Hubs across the country, in collaboration with a multi-stakeholder network architecture, which is crucial to the development of effective service delivery, a focused platform as well as monitoring and evaluating processes that will guide, inform and report on progress of the e-Skills agenda. The e-Skills program is already bearing fruit, as can be seen in the equipping of schools and research institutions with computers, utilizing the latest technology. The E-RAP program launched by the Department of Communications is an example of the e-Centre hubs being set up to allow computer access for citizens in rural areas. The belief is that the global knowledge society can dramatically impact the way citizens in these areas, live, work, and play and that only through

government and multi-partnership collaboration can the country become a fully-fledged member of the information society.

Building Capacity for an Information Age in South Africa

It was in 1996 that then Deputy President Thabo Mbeki first identified the pillars that underpin the building of an Information Society in South Africa. And it is this vision that has evolved into the Presidential National Commission (PNC's) strategy towards Information Society and Development. The following excerpt is taken from his opening address to the Information and Society Conference held at Gallagher Estate, Midrand, on 13 May 1996:

“There would be no Information Society without proper infrastructure and delivery mechanism adapted to the global development needs of the people, Content in news, educational, cultural and entertainment programs, songs, games, etc, plays a pivotal role in the building of the Information Society with the support of government. If this vision is not shared within and outside government, then the road ahead becomes more difficult. But government is not the only player. The private sector is entitled and indeed encouraged to play its role. Beyond the status of an information technology user, industry and trade must encourage training, foster internal communication by using modern technologies, invest in long term initiatives, and assist schools and hospitals with communication and information equipment and systems. To government and business, one must add communities and organizations of civil society. From trade unions to churches and charitable organizations, to municipalities and civic groups, all of these are part of this endeavor” (Mbeki, 1996).

These strategies were formulated under the presidency of Thabo Mbeki for building an Information Society:

- The establishment of a Presidential National Commission (PNC) to recommend strategies on bridging the digital divide;
- The formation of the Presidential Task Force on information Society and Development, an international body to advise the President on international ICT development;
- Fostering partnership between government and the private sector;
- Encouraging the participation of civil society in the use of ICTs; and
- Focusing on national development priorities such as:
 - growing the economy; job creation; health; rural development; agriculture; and the diversification of production and exports, with a focus on market access for goods to industrialized countries.

Often, and in co-operation with international and regional organisations, government contributes to the Information Society through tax and other incentives, using existing parastatal companies, regulatory agencies, and educational institutions. The government is faced with the challenge of ensuring that policies related to ICTs are in harmony with other existing or newly formulated government policies. When examining the relationship between these two types of policies, there is often an overlap between them, and sometimes existing policies may be seen to inhibit ICT development. Should this be the case, then amendments should be made to create harmony (South African Department of Communications, 2010a). The liberalization of sectors can also be viewed as a strategy for government to promote competition and bring in much needed foreign direct investment for economic development. Once a sector is liberalized, the government's next

task will be to ensure the formation of a well-established and equipped regulator to deal with potential irregularities within the sector. Infrastructure backlog is one of the major obstacles the country has to overcome before it achieves real development. Two elements underpin the discussion around developing ICT infrastructure. These are affordability and accessibility. The roll-out targets of supplying infrastructure to under-serviced areas will only be met if users can afford both the technological equipment and the services related to their operation. Both the physical location and the design of a particular technology will determine its utilization. This means that technology must not only be within reach of the people for whom it is intended, but that it must be accessible regardless of age or physical disability (South African Department of Communications, 2010a).

Content is mainly about language, sound, visuals and data. The main stakeholders, publishers, manufacturers of electronic equipment, telecommunication companies, need to encourage local content development with translations and adaptations to fulfill the needs of consumers. To build up local content, we must encourage the support of local stakeholders in setting technical standards for local languages and developing national programs. The application of ICTs in communities varies according to their needs, be it agriculture, health or government services. ICTs must thus be relevant to communities to address their needs. A business transaction, such as electronic banking where funds and credit payments are processed using a computer, is a typical example of an ICT application. This is e-business. Other examples include: e-education, where distance learning makes it possible for an instructor to communicate with students from a distance using technology, e-agriculture, where the application of remote sensing satellites could be used to monitor agriculture productions, soil texture, and land and water resources, e-health,

which could eliminate the long process of waiting for doctors to prescribe medication in areas where access to doctors is difficult, e-government, where the public would be able to obtain documentation such as ID books online, e-communication, where communication across all sectors of society is facilitated with the use of telephone, the Internet, video conferencing and other ICT tools (South African Department of Communications, 2010a).

The e-Skills (e-SI) Initiative

The e-Skills Institute (e-SI) is a South African Government initiative which aims to harness the potential of ICT across the full society to address the major socio-economic challenges that South Africa faces in delivery equitable prosperity and global competitiveness. The Institute sees itself as a catalytic collaboration in e-skilling the national in relation to employment readiness; effective e-governance and service delivery; business development; socio-economic development and research and development. South Africa has an unenviable position with regard to e-Skills and its e-readiness positioning on global indicators is deteriorating in a frightening manner. Addressing the fundamental issues that South Africa faces cannot be advanced in any meaningful way without a rapid attention to e-Skills (South African Department of Communication, 2010b). For South Africa, “e-Skills” means the ability to use and develop ICTs within the context of an emerging South African Information Society and global Knowledge Economy, and associated competencies that enable individuals to actively participate in the world in which ICT is a requirement for advancement in government, business, education and society in general (National e-Skills Plan of Action, 2010). The vision and mission of the e-Skills Institute *inter alia* states that change in South Africa can be brought about with a national catalyst, facilitator and responsive agent for development, within the globally evolving

information and knowledge based environment, by leading the creation of key e-skills development strategy, solutions, practises and the implementation thereof, to benefit the total population (South African Department of Communication, 2010b).

Economic Advancement

Up until 2008, the South African economy consistently maintained a GDP growth of between 4-5%, buoyed by strong consumer spending and increased output from the manufacturing sector. In 2004, the South African government set a goal to half poverty and unemployment by 2014 (Accelerated and Shared Growth Initiative for South Africa, 2010). Economists are the first to advise that it is imperative that skills development continues during periods of economic decline. This is imperative to ensure the availability of skills when the upswing begins. Nonetheless finding competent basic ICT and general networking skills in South Africa is proving a challenging task. Further complicating the current situation is the demand for more sophisticated ICT technologies that better support business flexibility. Demand for general and more advanced ICT and networking skills is simply outstretching supply, and the gap will only widen further if corrective measures are not taken (National e-Skills Plan of Action, 2010). At the core of the e-SI approach is the establishment of distributed network architecture, one that provides a structure for effective engagement of all key stakeholder groups across Government, Business, Education and Civil Society including Labour in a targeted local effort that is linked to national policy. The e-SI sees the establishment of independent but linked e-Skills Knowledge Production Hubs across the country as a core activity in bringing a collaborative approach to e-Skilling the Nation. These hubs will be based on a multi-stakeholder network architecture which is crucial to the development of effective service delivery, a focused research platform as well as monitoring and

evaluation processes that will guide, inform and report on progress of the e-Skills agenda (National e-Skills Plan of Action, 2010).

The Department of Rural Development, in a work study undertaken in the rural areas of South Africa, has identified a huge shortfall in basic computer literacy and introduced the E-RAP program, which aims to connect rural dwellers with the information age. Citizens who live in these areas are economic excluded due to a multitude of factors, due to amongst others, the following:

- Low skills levels in ICT's,
- Lack of economic development in rural areas,
- Lack of information on job opportunities,
- Limited communications tools in remote village,
- Postal services & faxes the predominant modes of sending & receiving documents
- Lack of Banking Services Outdated information in library books
- Limited information on tender opportunities
- Little or no information on government services and programmes
- Provide ATM services for rural communities.
- Provide on-line services for rural communities.
- Provide information for small scale farmers, small and medium-sized enterprises (SMEs) and cooperatives (Tsabalala, 2010).

The objectives of the E-RAP program are to create a better life for all the citizens and creating centers where people can mobilize around usage of ICTs. The centers will provide free access to

internet, e-mail, functional ICT training and other business applications. Furthermore, the E-Rap program aims to empower underserved communities (including the disabled) through the provisioning of valuable government and other online information and services. ICTs can also be positioned as an alternative and easier option in responding to challenges of poverty, accessing basic services and interacting with government. The centers will become knowledge and information hubs for the communities within which they are established. All in all, communities should be empowered through valuable, accredited ICT skills (Tsabalala, 2010). The E-RAP program will also focus on education in ICT, provided in e-mail, MS Word, and Excel, which will give students the knowledge to access distant learning institutions and materials. SMEs benefit from the program, insofar, it will allow them to gain access to tender and financing information. Sport organizations and clubs can link with larger clubs, share training programs, and administrative functions of clubs can be performed at e-centres, as well as the announcements of sport results. People now can have easy access to government information, search for jobs on various government-run portals. Users have exposure to more banks than those in their villages or towns. Purchasing online is another option to consider when deciding to buy something. Accounts, fines and fees can be paid online, which as a benefit, eliminates the long queues, faxes and Telkom (South African National Telephone Company) mail (Tsabalala, 2010).

The E-RAP program, however, is not a smooth ride but presents a certain amount of challenges, which includes, low awareness and understanding of the potential benefits of e-mails and internet in communities, high cost of sustaining the program, the internet's impact on eliminating economic exclusion is limited at this stage, but the potential benefits is gradually to increase over

the next five years, lack of instruments to measure impact of the centres on the communities, need for stronger cooperation with development partners such as DOC, PNC, Local Authorities, Provincial Government, Post Office etc, low ICT skill base in rural communities, low trust in Government programs, lack or little infrastructural investment in rural communities, internet connectivity and the cost thereof remains a serious challenge, government's long procurement processes are a great challenge for the procurement (Tsabalala, 2010).

The Information Society Vision for South Africa

A lot of accounts about the information society start with statements related to the advent of a global information revolution or society which is expected to have a substantial influence on societies all over the world (Mandela, 1998). There is a strong belief that 'the global knowledge society is going to have a dramatic impact on how we live, work, play, and organize our lives and societies' (Naidoo, 1997). Underlying the revolution towards the information society is a shift in the productive structures of our economies, global as well as local, in which information and knowledge are regarded as the prime productive resource (Naidoo, 1997).

The advent of the information society is often seen as the outcome of, or even equated with processes of technological convergence. This convergence is identified as the fading of the 'boundaries between broadcasting, telecommunications, information technology and multi-media', (Naidoo, 1997), as a result of the possibility for each sector to process and exchange information in digital form. At the level of the sector itself this evolution poses major challenges for policymakers, regulators, legislators, operators and users. The convergence of technologies has also begun to affect not only the ways in which markets are structured, but also the alliances

of companies in broadcasting, telecommunications and general media services. These developments affect both the infrastructure and the content components of the telecommunications sector which require a multi-sector approach involving related industrial and trade policies (Naidoo, 1998).

Taken together, the evolution towards the information society, characterized by a shift in the production structures of the world economy and based largely on technological convergence, is perceived as providing countries, particularly South Africa, with 'an unprecedented window of opportunities'. This belief is widely shared by South African political leaders. In his memorable speech at the ITU's Telecom 95 Conference President Mandela stated that converging developments in the fields of information and communications offer immense potential to make real progress in the direction of 'eliminating the distinction between information rich and information poor countries which is critical to eliminate economic and other inequalities between North and South, and to improve the quality of life for all humanity' (Mandela, 1998). Although South Africa's leaders recognize these potentials they are aware that they may not materialize automatically. Access to these technologies is one of the preconditions for the actual use and implementation of new technologies and their content. Many have pointed out the enormous disparities between access to ICTs in the West and in the developing world, especially Africa, as well as in South Africa itself between the white, colored and black population and between urban and rural areas (Mandela, 1998). Universal service, nationally as well as internationally is therefore considered one of the prime goals of South Africa's vision on the information society (Mandela, 1998). Over and over again politicians have stressed the necessity of bridging the gap between information rich and information poor by providing universal service or universal

access. The extension of the network is a precondition for the provision of other services to the most marginalized and vulnerable in society (Naidoo, 1998).

As to the content flowing over the information superhighway, South Africa is aware of the enormous imbalances in the flows of information. Access to the content spreading through multimedia networks may well have negative impacts on culture as well as development. What is the content we are putting on our screens or through our infrastructure in terms of our Internet? In fact, we have seen a uni-color world, we are seeing a uni-lingual world, and we are seeing a world increasingly dominated by a particular ideology that seeks to preserve the wealth and affluence and privilege of those who are powerful in the world today. So we could be very much grateful to a twenty first century dominated by a new form of colonialism, of info-colonialism, which is more debilitating in its destruction of our cultures of our value systems of our languages of our very heritage (Naidoo, 1998). Africa faces a repeat of becoming the dumping ground of not only failed baby products and the cigarette export backyard but also their cultural products that will make us a poor photocopy of Western values (Naidoo, 1997). The challenge for Africa in general and South Africa more particularly is 'to produce the content that develops our own cultures, our own diversity, of our own strengths, of exploiting a huge wealth that we have inherited in terms of our dance, our drama, and our culture'. South Africa sees itself as a possible forerunner for the rest of the continent in producing and exporting African content (Naidoo, 1998).

Apart from presuming the advent of the information society, some of the more interesting accounts on the information society link the information revolution to broader processes of political and economic globalisation. Thabo Mbeki in particular, de facto responsible for much

of South Africa's macro-economic policies, often links the information revolution with economic development in a new global economy in which information and knowledge are increasingly recognized as a valuable resource (Du Plessis, 2007). Apart from the hype and particularly when faced with an international audience, accounts on the global information society or on globalisation itself are more critical. In a speech to the Twelfth Summit Meeting of Heads of State and Government of the Non-aligned Movement, Mbeki emphasized that the processes of globalisation, liberalization, deregulation and information society or information superhighway 'all originate from the developed countries of the North, and as such reflect the imperatives of the economies and levels of development of these countries and therefore, serve the purposes of the rich global north'. Furthermore, processes of globalisation result in the reduction of the sovereignty of states, with the weakest, being the developing countries, being the biggest losers (Naidoo, 1998). However, as Mbeki points out, economic development can no longer be achieved by opting out of the world economy. The process of globalisation, in all its forms, means that our own success as developing countries in terms of the uplifting of our peoples cannot be achieved in conditions of autarky or self-contained development within our national boundaries (Du Plessis, 2007). The same goes for the information society. Despite certain reservations as to the international context in which the information society is evolving, South Africa's leaders have invariably stressed the importance of joining the information superhighway in order to reap its fruits (Du Plessis, 2007). The information society is not an impossible dream; neither is it a sophisticated nicety. It is fundamental to the upliftment and the improvement in the quality of life of all the disadvantaged people of the world, to ensure those future generations do not suffer from the same disadvantages and that the principle of equal opportunities prevails (Mandela, 1998).

Local governments, the private sector, labour and communities, are jointly driving local development strategies based on a shared commitment to being the cutting edge of the world. This vision however includes a commitment to principles of equity, empowerment and upliftment of Southern African economic region and the African continent as a whole. But like most other developing nations, the gap between the vision for the future, and the reality of the present, is often a very big one and very difficult to bridge. Arguably, one of the key elements missing in South Africa's entering the information highway is a lack of bodies and strategies to access and use the information industry as a driver of future economic growth. South Africa has not yet developed an advanced plan for developing global information networks and supporting the establishment of informational regions. It is difficult to see how South Africa can take the high road to economic development and aspire to be a world player, without a focus and strategy for becoming economy based on and driven by information and information technology. Government has already indicated its awareness of this need and its commitment to addressing this aspect more seriously (Cogburn, 1998). But it is not yet clear who should be the lead agents in the formulation of strategies to see the growth of an integrated information technology sector in South Africa and from which quarter should development of informational regions be driven. Can the local private sector in South Africa, who quite frankly do not appear to have a glowing record in terms of leading progressive development strategies, be expected to earnestly invest in building the capacity of the information technology sector and facilitating the establishment of informational regions? Or is this again an area where Government must pull along almost unwilling partners to into a coherent strategy? These questions point to the need to analyze the form that social partnership should take when it comes to strategies addressing South Africa

taking a leading place amongst the economies of nations and regions in the information age (Cogburn, 1998).

With regards to South Africa's IT competitiveness in the information age, with the latest statistics available, the country ranks 43rd out of 66 countries measured in the 2009 IT industry competitiveness index, with a score of 35.3 out of a possible 100. The survey, now in its third year, ranks the information technology (IT) industry environments of 66 countries on the extent to which they enable a competitive IT sector. South Africa's shift from 37 in 2008 to 43 in 2009 can be contributed to changes in the country's performance as well as to improvements in the sources of data used to measure some indicators, the report says. According to The Economist Intelligence Unit, (2011), six factors work together to create a sound environment for the IT sector: an ample supply of skilled workers; an innovation-friendly culture; world-class technology infrastructure; a robust legal regime that protects intellectual property; a stable, open, and competitive economy; and government leadership that strikes the right balance between promoting technology and allowing market forces to work. According to the study, South Africa performs best in the areas associated with the business environment, scoring 74.9 out of a possible 100, and the legal environment (63.5). The country also fares relatively well for its support for IT industry development, with a score of 55. However, South Africa's IT infrastructure, with a low score of 17.8, is identified as the key area in need of improvement, primarily through the provision of high-quality networks and greater liberalization of telecommunications. The R&D environment, scoring a mere 13.2, and human capital at 31.8, are other areas earmarked for improvement (EIU, 2011). "In today's economic climate, supporting a strong technology sector is more important than ever," said Alastair de Wet, chairperson of the

South African chapter of the Business Software Alliance, sponsor of the survey. "Technology can drive the economic recovery and generate long-term economic growth. Broadband availability is becoming increasingly essential to IT-sector competitiveness, as more IT offerings are delivered over the internet." He said the recent construction of the Seacom cable and the premise of increased and cheaper broadband could influence the South African rank positively in the next few years (Taylor, 2011).

Conclusion

Over the last few years numerous initiatives in the area of infrastructure development and applications have indicated that government seriously intends to implement its vision. In this respect there is a definable link between policy discourse on the information society and its implementation. Technology has proven transformative through its singular capacity to enable us not just to do familiar things better or more efficiently, but to do familiar things differently, and new things that have never before been possible or even imagined. ICTs are the catalysts that are changing the behaviour and culture of most institutions in society, including education institutions. ICTs are more than modern media. Their ability to facilitate horizontal, interactive and democratic communication represents a major qualitative step forward. In the African information society, the intangible elements of knowledge thus assume an importance that cannot be compared with the tools and techniques (information technology, internet, and telecommunications) which enable dissemination and sharing. The critical role of government is to determine the overall policy framework for development. This has to be aligned to the macro-economic policy and the industrial policy of the country. The policy objectives should ensure that South Africa becomes competitive in the global economy. The industrial strategy should

facilitate the transformation of the economy from an industrial based production to the production of knowledge. As demonstrated in this paper, over the years South Africa has developed a rather comprehensive vision on the information society. Put rather simply, South Africa's political leaders share the vision that ICTs can help to overcome some of the legacies of apartheid. Especially in the area of services, ICTs are identified as facilitators in the restructuring of sectors and as the means of delivering services not readily available, through tele-education, tele-health, tele-government etc. This vision is based on a central belief in the possibilities of ICTs for social change. In the field of access to the internet and developing e-Skills, South Africa is restructuring the sector according to international experience and put into place e-centers and hubs geared at extending and modernizing the ICT infrastructure. Although South Africa's vision on the information society is very ambitious and even innovative in international perspective, its implementation will ultimately depend on the extension of infrastructure to underserved areas. In the area of public services, the government is making progress with the NeSPA project, as it is e-skilling the nation and empowering previous disadvantaged groups into more equitable, prosperous and global competitive units. However, access to information as such is not sufficient for development. What is needed is the fostering of institutional and individual capability to turn information into useful knowledge for development.

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