

### 11.1 Overview

The knowledge economy or society requires profoundly new ways of thinking, working and living. These include building new capacities for the entire nation. These capacities are inevitably associated with the ability and use of ICT, and are often referred to as e-skills.

The rapid development of ICT over the past 20 years has seen many career paths become obsolete in secretarial services, booking services, finance services etc. Many new jobs using and developing new ICT-based applications are being created. Guiding South Africans, especially young people and equipping them with skills that cater for these new opportunities, building an astuteness to rapidly appropriate the new programmes and devices into local benefit i.e. 'e-astuteness' and encouraging and supporting ICT entrepreneurs, are vital for the future of South Africa.

### 11.2 Legislative and policy framework

Developing the human resource capacity of the country was an integral part of government policies on the sector to address inequalities and to grow the economy. In reviewing the sector's White Papers regarding training and skills development the following issues were raised:

- Transformation of the workplace to become representative of the demographic profile of South Africa with a specific focus on those previously disadvantaged.
- Accreditation of people in the sector. The South African Qualifications Authority (SAQA) and National Qualifications Framework (NQF) will recognise skills and compliance and will be monitored by the Ministry.
- Human resource directorates will be established.
- Training activities were identified for workers, technicians, artisans, tertiary institutions and schools.

The ICT Charter has had a direct impact on the sector and the SAQA and NQF guidelines have been developed. In terms of broadcasting, neither the HR fund nor the directorate was established. However, there have been some important developments: the National e-Skills Plan of Action (NeSPA) has been developed and the Human Resources Development Council of South Africa (HRDCSA), the e-Skills Council, the MICT Seta, Knowledge Production Hubs, and the National e-Skills Dialogue Initiative (NeSDI) were all established to prioritise skills development.

#### 11.2.1 National Development Plan 2030 (NDP)

The NDP has created a vision and has identified targets to be obtained by 2030 in order to eliminate poverty, reduce inequality and spur the economic development of the country. Education, training and innovation are considered key priorities for South Africa's development and life-long learning is to be encouraged. The focus is on developing capacity and skills amongst South Africa's people. Currently, too many people are unemployed (24,7%) and this is especially so amongst South Africa's youth (70,9% of 15-34 year-olds). Education and skills are key to changing this. Currently, only 3% of 20 to 24-year-olds are enrolled for further education and training programmes.

The National Development Plan calls for an e-literate society by 2030. It further highlights the three priorities namely:

- Raising employment through faster economic growth;

- Improving the quality of education, skills development and innovation; and
- Building the capability of the state to play a developmental and transformative role.

### 11.2.2 National e-Skills Plan of Action (NeSPA), DoC

Taking into account the WEF report and the call of the NDP, the Department, through its e-Skills Institute, cited amongst others the following shortcomings/opportunities for developing the required e-skills human capacity:

NDP Priority Area	NeSPA 2013 Action
<b>Pillar 1: Unite around a common pillar to fight poverty and inequality</b>	Developing e-social astuteness across society is an essential component in developing a united approach to fight poverty and inequality. Without this essential ingredient it is difficult to see how society can be effectively engaged in dealing with these key issues facing South Africa.
<b>Pillar 2: Active citizenry (e-participation, e-democracy)</b>	Developing active citizenry in current times when more than 90% of poor people in townships have access to a cell phone is heavily dependent upon a national approach that recognises the essential value of new forms of ICT including social media. In turn this is then dependent upon a National e-Skills Plan of Action.
<b>Pillar 3: Inclusive economy</b>	An inclusive economy simply cannot be developed without a clear recognition of the impact of increasingly powerful, mobile, accessible and affordable modern ICT devices. Without a plan to develop capacity (e-social astuteness) right across society to use these devices effectively as customers, clients, consumers, businesses, SMMEs, families and communities, an inclusive economy will remain an elusive dream.
<b>Pillar 4: Build capabilities</b>	An evaluation of addressing poverty and inequality identifies capabilities to socially appropriate ICT for local benefit as an essential requirement. Hence the delivery of a national collaborative and integrated plan to e-skill South Africa lies at the very heart of capacity building for more equitable prosperity.
<b>Pillar 5: A capable and developmental state</b>	A capable and developmental state in a modern world clearly requires a state that is e-ready. Achieving a capable and developmental state simply cannot be realised without a concerted effort to address the issues underlying South Africa's e-readiness rankings.
<b>Pillar 6: Leadership throughout society to work together to solve problems</b>	Developing leadership across the breadth and depth of society to solve problems is heavily dependent upon the effective use of modern ICT to bridge socio-economic divides, share discussions across wide groups, build consensus and deliver collaborative approaches. Without a well-developed e-social astuteness across the full spectrum of social media, it is difficult to see how a collaborative approach to problem-solving can be developed.
<b>An economy that will create more jobs</b> - NDP proposes to create 11 million jobs by 2030 -	e-skilling people for employment and entrepreneurship.

<b>NDP Priority Area</b>	<b>NeSPA 2013 Action</b>
<b>Improving infrastructure</b>	e-skilling (including building e-social astuteness) for the infrastructure planners and operational staff.
<b>Transition to low-carbon economy</b>	e-skilling (including building e-social astuteness) for sustainability development.
<b>An inclusive and integrated rural economy</b>	e-skilling (including building e-social astuteness) for rural communities and small-scale farmers.
<b>Reversing the spatial effect of apartheid</b>	e-skilling (including building e-social astuteness) the townships' population for Digital Inclusion.
<b>Improving the quality of education, training and innovation</b>	Giving educators and learners various e-skills (including building e-social astuteness) at all levels of education Early Childhood Development (ECD), primary, secondary, tertiary).
<b>Quality health care for all</b>	Providing e-health skills.
<b>Social protection</b>	e-skilling (including building e-social astuteness) citizens and government officials for using ICT in social protection services
<b>Building safer communities</b>	e-skilling (including building e-social astuteness) citizens and the safety and security related government officials regarding effective use of ICT for building safer communities.
<b>Reforming the public services by professionalising them</b>	Providing e-government and e-governance skills.
<b>Fighting corruption</b>	Providing e-Government and e-participation skills for greater transparency.
<b>Transforming society and uniting the country</b>	Providing e-Skills (including building e-social astuteness) for digital and social inclusion.

### 11.3 Institutions involved in skills development

The following are institutions involved in skills development:

- SETA (Sector Education and Training Authority):
- Media, Information and Communication Technologies Sector Education and Training Authority (MICT Seta);
- National Association of Broadcasting of South Africa (NAB); and
- the e-Skills Institute.

### 11.4 Employment and skills gap

Approximately 180 000 people are employed in the sector, of which roughly 15 000 are software developers. There are nearly 8 000 companies in the ICT sector, most of them employing fewer than 50 people.

### **11.4.1 Skills Gaps in the ICT Sector**

An assessment of the industry conducted by the MICT Seta identified the immediate needs in each sub-sector with the IT sub-sector experiencing the greatest skills crunch. Software developers, programme developers, mobile apps development, computer network and systems engineers, ICT system analysts, computer network technician and call-centre agents are all in demand. In telecommunications, ICT business development managers are needed, in electronics, electrical engineering technicians, software developers, IT and network engineers, in advertising, multimedia designers, and in broadcasting, authors and radio journalists. Other skills identified include that of ethical, security, spectrum management, business analytical skills and e-leadership capabilities.

### **11.5 e-Skills for the Future & Global Trends**

NeSPA 2013 identified key global trends that will affect South Africa, and pinpointed ways that the ICT sector could develop in the country: These trends included the following:

- The developing world – with more than half the world's population – provides the biggest opportunity for 'new-use' users for many ICT providers and developers.
- ICT development is converging, becoming more mobile, more affordable and more accessible in ways that suit developmental agendas for many countries.
- There can be no sustainable progress in developing equity of life chances in developmental states without the effective social appropriation of ICT.
- The rate of ubiquitous development of ICT is moving past the current capacity (for effective deployment and adoption) and attitudes of many societal, organisational and service delivery structures.
- Collectively these trends are irrevocably changing the fundamentals of many services, businesses, educational approaches, the praxis of governance and the way in which life is led. These impacts are likely to be greatest in places with large equity gaps.

### **11.6 Teacher Training, Curriculum Development & Further Education & Training Sites (FETS)**

#### **11.6.1 Teacher and Lecturer Training**

The future of the classroom whether it be in schools, colleges, universities or private institutions will be very different from the form the previous generation knew, with the move across to digital online teaching and knowledge and information sharing via the Internet. There is also the potential to centralise teaching where one teacher's training of a class can be distributed to multiple classes simultaneously with in-class teachers becoming facilitators. In the near future, teachers need to be equipped with the necessary ICT skills to utilise the online e-education platforms and undergo routine ICT skills training.

#### **11.6.2 Curriculum Development**

The Department of Higher Education & Training (DHET) together with the MICT Seta can facilitate, monitor and evaluate innovations in future curriculum development that support diversity in skills. This is only for the ICT Sector and again only for the levy payers.

The Institute, comprising e-SI, Nemisa and the Institute for Space and Software Applications (ISSA), together with business, government, civil society and education embarked on a process towards developing an e-skills National Curriculum and Competency Framework (NCCF) that looks at targeted needs against the NDP, and then maps and links pathways to attaining those skills to meet the needs.

This plan includes building an e-Skills curriculum and a competency framework and aims to focus on e-Literacy/e-astuteness as the foundation level. This is the ability of an individual to use digital devices and services in their day-to-day activities, whether it is at work, home or for personal interactions.

### **11.6.3 Further Education & Training (FET)**

A comprehensive Turnaround Strategy has been developed by the DHET for the 50 FET Colleges, which includes all 264 campuses. The aim is to improve the quality of both the teaching and the learning taking place at FET colleges. The overall capacity building will improve the employment prospects of these graduates and thus have a positive impact on the economy as a whole. Currently 13- 25% of students enrolled at FET colleges drop out each year with Level 2 of the National Certificate Vocation experiencing the highest dropout. The NDP aims to increase graduation levels to 75% in 2030 from the 40% experienced in 2010.

A comprehensive and thorough evaluation of new courses and curricula is required that include careers in the ICT sector.

### **11.7 Workplace Training**

The MICT Seta asked its members to assess what held back graduates (school, college, technology, and university graduates) from progressing either in a job or to further studies. Several patterns emerged with regards to the shortcomings related to generic skills sets. The gaps include: business management skills; language proficiency skills; work ethics; critical thinking skills; life skills; communication skills; computer skills and financial skills.

On-the-job training and short courses have been identified as the approach to take for workplace training. Advances in technology require on-going learning in the workplace to continuously improve efficiencies. This requires self-learning, and both informal and structured on-the-job e-Skills transfer between employees.

### **11.8 Adult Training**

The Department of Higher Education and Training (DHET) is currently reviewing policies and programmes to restructure adult basic education and training (ABET). This includes being more responsive to needs and expanding programmes and access to these programmes. The MICT Seta will need to consider these policies and plan accordingly for ABET programmes in the sector

### **11.9 Promoting Innovation and Supporting Research & Development**

Greater access to technology opens up a world of possibilities, and with South Africa's mobile penetration of 136% and Internet access of 35% we are on the cusp of being able to grow and develop our e-astuteness. With more people accessing smartphone technology, Internet access will increase and with it access to information that can inspire and grow potential and knowledge across all ages.

To promote innovation, a thriving and coordinated research focus is needed, which in turn promotes further innovation. The unstructured and fragmented research that has characterised South Africa's approach has not been able to address its capacity needs.

A fully integrated and coordinated framework is required that aligns to the priorities of the NDP and the national skills plan. To this end an aggregated data analysis of South Africa's needs and skills gaps in relation to new global technological trends is urgent.

**Policy Questions:**

1. How can South Africa maximise its human e-Skills capital to take advantage of new technologies to become a more effective part of the Knowledge Society?
2. What strategies can be put in place to meet the sector's human resources needs?