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Department:
Communications
REPUBLIC OF SOUTH AFRICA

Ikamva National e-Skills Institute

e-skilling the nation

National e-Skills Plan of Action 2013

from the Second e-Skills Summit held in Cape Town from 22–25 October 2012

continuing to e-skill the nation for equitable prosperity and global competitiveness

National e-Skills Plan of Action (NeSPA) 2013

"Continuing e-Skilling the Nation for Equitable Prosperity and Global Competitiveness in the Knowledge Society"

March 2013

[This document reports on achievements of the first National e-Skills Plan of Action (NeSPA) 2010 and the development and conclusions of the second e-Skills Summit, which were the bases for setting the new Action Plan (NeSPA 2013) for e-Skilling the Nation for Equitable Prosperity and Global Competitiveness and an effective participation in the Knowledge Society]

Preface

Building the capacity of our people is at the heart of South Africa's National Development Plan (NDP) which is "the light on the hill" to guide us to 2030. The fuel for this light is made from equitable prosperity and global competitiveness, glued together by a living Ubuntu deeply embedded in every being.

There can be absolutely no doubt that dealing with the socio-economic challenges we face in a sustainable manner that embeds increasing confidence and self-reliance in our people, developing astuteness in all of our people to socially appropriate all forms of ICT will be essential.

The new world of ICT is forever growing, changing and adapting in every conceivable manner; the technology is becoming more powerful, more mobile, more vision related, more accessible and more affordable every day and we need to recognise this in how we respond to harnessing it in our capacity building work.

I am reminded here of the old Chinese Proverb "Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime". Chad Perrin has interpreted this in today's world, increasing dominated by the Internet, to "***Give a man the answer, and he'll only have a temporary solution. Teach him the principles that led you to that answer, and he will be able to create his own solutions in the future***".

In the context of socially appropriating ICT for local benefit and developing our capacity to meet the goals of the NDP it is vital that we develop astuteness in our people to adapt to the power of the rapidly evolving technology. This concept of **e-social astuteness** is a key foundational principle of this NeSPA 2013. In this sense we need to develop our educational, training, service delivery and evaluation processes to respond to the needs of all of our people whether they are in jobs, formal education, in rural, peri-urban areas or not. We can only address our sliding position in the global e-readiness indicators with a comprehensive approach.

The NDP also examines why some of our boldest programmes such as the Reconstruction Development Plan (RDP) have not reached their full potential. It found that an integrated collaborative approach within Government and across all relevant KSPs and being fully responsive to the international environment are key success factors in delivering success in major socio-economic initiatives.

The NeSPA 2013 builds on the NeSPA 2010 both of which have at their core the development of an integrated, collaborative and responsive approach across all stakeholder groups and in being situated in the international context. Hence they embed these key success factors into a catalytic leadership role to address what is arguably one of the vital issues for developing our nation into a more equitable, prosperous, cohesive, integrated society that is well respected in the international community.

The very nature of information is changing. It used to be considered as gold - stored to create wealth. Now we need to treat it like milk - share it widely and use it quickly before it goes sour.

The NeSPA 2013 provides a clear path that we must all support, we all must drive and we all must own. Simply put, we cannot continue the way we have been going or we will place our nation in an intolerable position by not effectively harnessing one of the greatest potentials we have to addressing our inequities.

Hon Dina Pule
Minister of Communications

Message from the Director of the Telecommunication Development Bureau (BDT), International Telecommunication Union (ITU)

I am pleased to have this opportunity to congratulate the Government of the Republic of South Africa, the Department of Communications, and the National e-Skills Institute for releasing this National e-Skills Plan of Action (NeSPA) 2013. It is an honour that the second South African e-Skills Summit that produced this Action Plan was part of the ITU Global ICT Forum on Human Capital Development that took place in Cape Town, South Africa, from 22 to 25 October 2012. The Forum was an excellent platform and opportunity for the launch of the ITU Academy and for our two organisations to showcase the good work that we have done so far in capacity building. I have no doubt that delegates who attended the Forum from all corners of the world also found the South African experience a useful case study to apply in their own countries.

It is my fervent hope that this well prepared and detailed document, NeSPA 2013, will go a long way in informing the readers on the positive outcomes of the second e-Skills/ITU Global Human Capacity Development Forum.

Brahima Sanou
Director, Telecommunication Development Bureau, ITU

Acknowledgements

In compiling NeSPA 2013 it is important to recognise the valuable contributions of the many experienced thought leaders and managers across Government, Business, Education and Civil Society in South Africa, Kenya, Rwanda, Mexico, 'Silicon Valley' USA, Ireland, United Kingdom, Australia and New Zealand who have shared their lived experience and provided such a wealth of well-considered advices. Their genuine concern and keen interest for success with this endeavour in South Africa has been both humbling and uplifting and ensured that the path chartered here is sound, achievable and can deliver sustainable impact. It is hoped that the many involved can see themselves in this document which is, in its essence, a collaborative approach to dealing with a very real issue at the centre of building a more equitable prosperity and increased socio-economic sustainability for South Africa.

The work reflected in this document valorises the e-Skills Institute's value proposition which provides a catalytic and collaborative platform for integrated action across aligned stakeholder partners.

Key global partners

The International Telecommunications Union (ITU) played a vital role in the development of this NeSPA 2013 by hosting the second South African e-Skills Summit as a part of their Global ICT Forum on Human Capacity development. This not only provided a national forum but also ensured that the work reflected in here was benefitted from experience of delegates from the 55 nations in attendance.

It is a pleasure to recognise the efforts of the South African desk of the UNDP which has demonstrated the real value of having a global partner in helping South Africa chart a relevant path towards a more inclusive socio-economic future enabled by new forms of ICT through building relevant local capabilities.

It is also important to thank the IBSG of Cisco for supporting the development of the emerging platform for the e-skills agenda in South Africa since 2008.

Local partners

The Telkom Centre of Learning Team has provided valuable support and input to the formation of e-Skills Institute since 2009 and was a vital contributor to the e-Skills Summit that provided the forum for the major inputs into this document.

The e-Skills Knowledge Production and Coordination CoLabs and their hosting Universities of Pretoria, Western Cape, Limpopo, Walter Sisulu, Durban University of Technology and Vaal University of Technology provided sound thought leadership in the lead up phase and the e-Skills Summit itself.

The Research Network for e-Skills (ResNeS) also provided thought leadership for the planning, delivery as well as the collation and analysis of the findings presented here.

The initial synthesis and base compilation of this NeSPA 2013 was undertaken by Dr Zoran Mitrovic of University of the Western Cape, South Africa and a team under the leadership of Ms Mymoena Sharif (Chief Director, e-Skills Institute) and that included Dr Zoran Mitrovic, Prof Walter Claassen and Prof Wallace Taylor developed the final document.

Executive Summary

The National e-Skills Plan of Action (NeSPA 2013) advances the base laid by NeSPA 2010 after the first e-Skills Summit, (Cape Town in July 2010). It recognises and valorises the foundational premises of the National Development Plan (NDP) 2030 that building capabilities has to be at the core of developing more equitable prosperity and global competitiveness in the South African socio-economic platform that is increasingly dominated by new forms of ICT.

The South African National Development Plan 2030 (NDP) recognises that the South African economy is too reliant on resources to build a sustainable future in which its people can build more equitable opportunities and a cohesive society that is proud of its culture, resourcefulness, innovation and global recognition. The NeSPA 2013 recognises that any sustainable approach to addressing poverty and in building self-reliance, self-respect and a more cohesive society, with a future for generations, cannot be achieved without the social appropriation of ICT for local and personal benefit. This simply cannot be achieved without recognising the need to build an ICT-related astuteness, i.e. **e-social astuteness**[1], across the full spectrum of South African society: as consumers, clients, customers, entrepreneurs, businesses, workers, learners, communities and families.

The Word Economic Forum (WEF) global e-readiness 2012 rankings show that South Africa has dropped from 47th (2007) to 72nd place (2012). It is a self-evident that whatever effort South Africa has applied thus far has not prepared its society for a socio-economic reality dominated by new forms of ICT applications and powerful mobile ICT devices. The WEF global e-readiness report identifies lack of appropriate skills as a major contributor to this slide. This is not because South Africa has not applied genuine effort but because other nations have applied a greater coordinated national effort and put the matter at the centre of national priorities in dealing with inequity.

Since the Global Financial Crisis (GFC) in 2008, governments have become much more aware of the necessity for their socio-economic base to become much more adroit in the use of ICT for job creation, financial processes, service delivery, flexibility, innovation and creativity, i.e. to become e-astute.

ICT devices are now rapidly increasing in capacity, mobility, accessibility, affordability and display capacity (including pictures, cartoons and video) in ways which overcome impediments of language and literacy and enables creativity across society. At this time developmental states are the biggest market in the world for devices, which are increasingly socially based, do not recognise nation state boundaries, develop new value propositions and aggregate effort into increasing economies of scale that challenge national capacity to influence. On the other hand, without national leadership and intervention, the natural tendency of this new technology is to scale into centralised hubs of decision making that increase inequity and hence poverty.

This NeSPA 2013 provides the model, identifies a planned approach, and calls for the emergence of a national entity that commands the support, resources and respect of all stakeholders: Government Departments, the State Owned Companies, Business, Education, Civil Society and Organised Labour (KSPs). The approach outlined in this document has been informed by in-depth investigation of approaches used in Mexico, Cuba, United States, Kenya, Rwanda, UK, Ireland, Australia, New Zealand and Northern and Eastern Europe. The model, which has been developed and tested across stakeholders in Government, Business, Education, Civil Society and Organised Labour (KSPs) since 2008, was endorsed by the ITU global ICT Forum on Human Capacity Development (Cape Town, October 2012) and recommended for adoption by the fifty-five (55) nations in attendance.

[1] The novel terms of e-Astuteness and e-Social Astuteness, used throughout this document, are in more details described in sections 5.2.3 Establishing e-Skills Integration for Impact and 5.2.5 Developing an e-Skills Ecosystem.

The deliberations in developing the South African NDP 2030 inter alia identified coordination within government, the private sector, education and civil society (KSPs) along with people centred development and being responsive to the international environment as key drivers in building a capable developmental state. NeSPA 2013 embeds responses to these issues into the essence and fabric of its approach. It provides the means for a single point of entry for national and international interactions in dealing with a matter that is at the core of its future prospects, namely building e-social astuteness across the full spectrum of society. It calls for and provides the approach for integration, aggregation and collaboration "*within and across government, the private sector, education and civil society*" in e-skilling South Africa. The aim is to redress its shocking slippage in the global e-readiness rankings and to build a sustainable base in South Africa for more equitable prosperity and global competitiveness in a socio-economic environment that is increasingly dominated by new forms of ICT.

NeSPA 2013 recognises the need for a mechanism to ring fence and second resources into a new vehicle to provide the means for all agencies to better align their efforts to building a societal e-astuteness (e.g. job creation and opportunities, enhancing quality of life, equal distribution of wealth) that is essential to achieving success in any developmental agenda in the 21st century. It recognises that the environment surrounding education, particularly higher education and training, is irrevocably changing and that Government must provide the mechanisms for education to be more directly aligned to and engaged with the community in ways that can deliver on the goals of the NDP 2030. New vehicles involving all relevant KSPs must be established with and at universities to provide a means for educational processes (national and international) to develop and apply their skills to build and evaluate capabilities for embedding new forms of ICT into every facet of South African life.

NeSPA 2013 recognises the need for the myriad of existing e-centres and community e-learning centres established by a vast array of government, private enterprise and civil society (KSPs) to be aggregated into a system that provides collaborative focus and leadership support in ways that harness the best knowledge directly into local development. This aggregated network of the community learning centres needs to harness the skills, energy and interests of formal and informal learners - as a component of formalising and embedding e-astuteness and e-social astuteness in social capacity development. These centres need to be redesigned, reinvigorated and developed into providing the means to harness local innovation, create opportunities that can be then feed into incubator centres and accelerator centres that can create new value propositions. This simply cannot happen without a concerted, mandated and integrated national approach.

NeSPA 2013 recognises the need to develop an architecture that can spearhead a focused approach for academia, research, monitoring and evaluation and policy development specifically aimed at building a societal e-astuteness. It recognises that despite the best efforts of the existing distributed system largely operating "in silos", South Africa's capability development for the social appropriation of ICT for local benefit has not worked. International experiences clearly demonstrate that putting more money into the existing structures will not address the matter and in fact often increases insular efforts, unnecessary competition and fails to align effort to address national goals in visible ways.

In order to address this matter and given the foundation set by NESPA 2010, NeSPA 2013 recommends:

1. Continuing with NeSPA 2010 recommended actions.
2. Providing the mechanism to aggregate and integrate efforts across Government, Business, Education, Civil Society, Organised Labour and with the international development community (KGDAs) that develops capabilities for an active e-astute citizenry which can grow an inclusive economy within a capable developmental state.
3. Developing policy-making, research, monitoring and evaluation capacity through:

    a. Strengthening the ResNeS with the allocation of funds and resources from existing government provisions.
    b. Request a policy intervention to allocate 12 South African Research Chairs Initiative (SARChI) professorial chairs to e-skills, e-astuteness, e-social astuteness and e-readiness initiatives with the relevant adjustments to the selection criteria to account for emerging national needs aligned to the NDP.
4. The establishment of collaborative multi-stakeholder funding vehicle to commence coordinating a multi-stakeholder approach to addressing South Africa's e-readiness slippage.
5. Reinforcing the mandated legitimacy and increasing awareness of the e-Skills Knowledge Production and Coordination CoLabs across all levels of Government (especially local and provincial), state owned companies (SOCs), Business, Organised Labour, Civil Society and Education by initiating project engagement supported in accordance with correspondence from relevant coordinating mechanisms of the South African Government.
6. The establishment and delivery of a national curriculum and competency framework (NCCF) for e-Skills across the full education, training and social learning landscape.
7. Building capacity for e-astuteness and e-social astuteness through the establishment of a 5 year program of e-capacity building sabbaticals for senior representatives in Business, Government, Education and international exchanges for postgraduate, undergraduate and high school learners in a coordinated approach across its international partnerships.

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Glossary

Term	Meaning
DoC	Department of Communications
DTI	Department of Trade and Industry
DPME	Department of Performance Monitoring and Evaluation
e-Astuteness	e-Astuteness is broadly defined as capacity to continuously appropriate the technology into personal work, education, business, social and family contexts for both personal and collective benefit.
e-SI	e-Skills Institute
e-Social Astuteness	e-Social Astuteness refers to the application of e-Astuteness in the socio-economic contexts and in communities.
HRDS	Human Resource Development Strategy
HRDCSA	Human Resource Development Council of South Africa
IPAP	Industrial Policy Action Plan (DTI)
ITU	International Telecommunications Union
KSPs	Key Stakeholder Partners across Government, State Owned Companies, Business, Education, Civil Society and Organised Labour
KGDAs	Key Global Development Agencies including ITU, UNDP, UNESCO, UNCTAD, World Bank etc.
MDGs	Millennium Development Goals
MTSF	Medium Term Strategic Framework
NPC	National Planning Commission
NDP	National Development Plan 2030
NEPAD	New Partnership for Africa's Development
NeSPA	National e-Skills Plan of Action
NICTA	National ICT Australia
RDP	Reconstruction and Development Programme
SOC	State Owned Companies
Ubuntu	In Xhosa “Umntu ngumntu ngabanye abantu” means “people are people thru other people”; in Zulu the word Ubuntu means “humanness”.
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USAASA	Universal Service and Access Agency of South Africa
WEF	World Economic Forum
WSIS	World Summit on the Information Society

1 Introduction

> "*We know it well that none of us acting alone can achieve success. We must therefore act together as a united people for national reconciliation for nation building for the birth of a new world*".
>
> President J. Zuma quoting former President N. Mandela's inaugural speech

> "*At the core of this plan is a focus on capabilities; the capabilities of our people and our country and of creating opportunities for both*"
>
> NDP 2030

Democratic South Africa has made genuine progress in creating a more equitable society by, for example, providing better access to education and training at all levels and continuous improvements to the healthcare system. However, despite the South African Constitution and the international human rights law recognition that everyone has the right to an adequate standard of living, we are still facing conditions which do not sustain the human rights of our citizens and their dignity. The situation is not improving in that we are still unable to achieve sustained economic growth that would support genuine equitable prosperity. As stated by the recent World Economic Forum's Global Competitiveness Report, policy-makers worldwide (including South Africa) "are struggling to find ways to cooperate and manage the current economic challenges while preparing their economies to perform well in an increasingly difficult and unpredictable global landscape"[2]. This Report also points out that one of most important pillars for achieving global competitiveness is quality of education and training as "today's globalizing economy requires countries to nurture pools of well-educated workers who are able to perform complex tasks and adapt rapidly to their changing environment and the evolving needs of the economy".

The recent economic and financial turmoil since 2008 has reinforced the wide-spread view that global economies and societies are more than ever reliant on information and communication technologies (ICT) as the world migrates to the so-called Information Society and Knowledge Economies – commonly called the Knowledge Society. The Internet is increasingly becoming a preferred platform for business connections as well as economic and societal innovation. Internet based applications and tools bring people together and enable them to share skills and knowledge for wealth creation, equitable prosperity and global competitiveness[3].

There is common understanding among the developed and developing countries that development of the knowledge-based and innovation-driven economies and societies is not possible without having highly ICT-skilled (e-skilled) knowledge workers and digitally literate (e-literate) citizens (as consumers, clients, participants, friends, families and communities). ICT-related knowledge, skills and competences (also referred to as e-competences) are critical for the growth of "new age" economies that indispensably require innovation and aggregation of resources, to achieve global competitiveness. In the South African context, e-skills are broadly defined as the ability of people to use and create all forms of Information and Communication Technologies (ICT) in order to achieve equitable prosperity and global competitiveness in general, and to improve their life opportunities in: (i) personal and educational space, (ii) work environments, (iii) community interactions and (iv) participation in government processes.

[2] World Economic Forum (2012) *The Global Competitiveness Report 2012–2013*, Geneva, available at: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf

[3] This, among others, include: employment readiness; effective e-governance and service delivery; business development; socio-economic development; and research and development.

However, there is increasing recognition that the shortage of people with appropriate e-skills and e-competences has reached "epic proportions", as highlighted by Don Tapscott in the recent European Union e-Skills Manifesto[4]:

> "*This is a problem of epic proportions because technology literacy capability and skills are critical for all industries. Old industrial age models for innovation, production, distribution and virtually every other economic activity are being turned on their heads by globalisation and the digital revolution*".

Recent efforts by the e-SI, through its Provincial e-Skills Knowledge Production and Coordination CoLabs, have made a significant start to developing approaches to skilling that can address e-skills capacity building in South Africa. Yet there is an obvious and urgent need for an accelerated and aggregated approach to e-skilling the nation to address the goals of the NDP and the MTSF (2009-14). Besides there being very short supply of e-skilled workers and citizens in South Africa, the 2012 Global e-readiness index further highlights South Africa's falling e-readiness position in relation to other developmental states – requiring an urgent, even more organised and coordinated action. The South African e-SI effort (involving Government and other stakeholders in business, education, civil society and organised labour) over the last two years has found that only a national approach built on effective collaboration across and within the stakeholder groups has the potential to address the immediate and future needs of South Africa through the ubiquitous adoption of ICT to build societal capability. In order to be successful, such an effort needs to be responsive to international trends, stakeholder needs, and the developmental agenda and be demonstrably aligned with the national developmental strategies.

In preparation for the second e-Skills Summit (2012), the e-Skills Institute and the Provincial Knowledge Production and Coordination CoLabs engaged a diverse range of stakeholders (Government, Business, Education, Organised Labour, Civil Society – [KSPs] and global development partners [KGDPs]) to identify the major issues that would help in achieving ICT-supported equitable prosperity and global competitiveness. These include:

- the population's need to have participative and engaged electronic access to all relevant government information and services including health services;
- workers' need to be e-competent (technical, business and social skills);
- citizens' need to be e-astute to be able to proactively engage with the ever changing technology platform in order to be effective users of services, build sustainable businesses, and to develop local applications to enhance opportunities in health, crime prevention, social cohesion, local governance, training and education;
- the necessity for an ICT career structure that will advance the attractiveness of the IT profession;
- the need for a formal education structure and National Curriculum and Competency Framework that supports the development of a range of e-skills for employment and fuller participation in both a national and global society;
- the need to develop more flexible working arrangements across geography to reduce travel, and increase opportunities for rural and peri-urban dwellers;
- the requirement for clear guidance frameworks to encourage the development of transferable skills and skills that are in most demand; and
- the need for skills development, training and services to be made available on multiple delivery and structural platforms and particularly on mobile devices.

[4] B. Lanvin (2012) in *E-Skills Manifesto*, Digital Europe, www.digitaleurope.org

In beginning to address these issues, the e-Skills Summit delegates, together with the international and local delegates to the ITU Global ICT Forum on Human Capacity Development, extensively discussed the following main themes[5]:

- Building the e-skills capacity across the full spectrum of society to respond to the country's national developmental strategies and policies;
- Innovation and creativity to create new job opportunities;
- ICT and e-skills within a developmental context; and
- Building a dynamic information structure.

Following the context, findings and recommendations of the second e-Skills Summit and the ITU's Global ICT Forum on Human Capacity Development, this second iteration of e-Skills National Plan of Action (NeSPA 2013) is organised as follows: it commences with a brief description of the background to this document within South African and international contexts. This is followed by a situational gap analysis, which was used as a base for producing the recommendations for e-skilling actions aimed at creating the NDP outlined socio-economic impact. These actions are provided in the section 'Towards Delivery of Impact'. This is then followed by the final section of this document 'Delivery Plan for Impact', which outlines the crucial elements required to enable delivery of the plan for impact.

The document ends with a number of appendices that are useful to understand the broader context of this document and the e-skills agenda in South Africa.

2 Historical perspective, current context and the situational gap analysis

2.1 The origins of the e-Skills agenda in South Africa

The origins of the e-skills agenda in South Africa are provided through the summarised explanation of the establishment of the e-Skills Institute, followed by the organisation of the first e-Skills Summit which produced the first National e-Skills Plan of Action (NeSPA 2010). These events marked the beginning of an organised, systemic approach to e-skilling the South African nation for equitable prosperity and global competitiveness.

The Presidential International Advisory Council (PIAC) on the national structural theme of Information Society and Development (ISAD) gathered in 2007 to discuss the lack of e-skills in South Africa and the negative consequences that the country was facing and concluded that an institutionalised national e-skills initiative should be launched. Consequently, the Department of Communications (DoC) formed the e-Skills Institute as a Departmental incubator programme, envisioning its development in three phases: conceptual, incubation and stand-alone. The e-SI then commenced a process to engage various stakeholders ranging from Government, Business, Education and Civil Society to Organised Labour and Global (international) Development Partners. This process of engagement of various stakeholders led to the first national e-Skills Summit in July 2010, resulting in the development of the National e-Skills Plan of Action (NeSPA 2010) and a range of implementation activities between 2010 and 2012. The need for NeSPA 2010 arose from three prevailing facts at the time in 2008:

- There was widespread agreement that the social appropriation of information and communication technologies (ICT) for local benefit and associated knowledge production was essential for building a more equitable prosperity and globally competitive economy in South Africa;

[5] For a full range of questions discussed at the Summit, please refer to Appendix F.

- There was also substantive evidence that in South Africa there was a serious shortage of skills that would enable an effective use of contemporary ICT skills (e-skills); and
- That South Africa was slipping down the international "e-readiness" rankings.

Wide discussion and consultation across all key stakeholder groups, before and during the first e-Skills Summit, found that the three major themes needed to be addressed to develop a national approach to "e-Skilling the Nation" and advancing the country's socio-economic development were: (i) an advanced understanding of the breadth and depth of e-skills, (ii) research needed to develop their real-life applications and apply these experiences to policy development, and (iii) Their relevance to South Africa's strategic direction. Accordingly, the following five Key Recommended Actions were proposed:

1. Develop the National e-Skills Plan of Action (NeSPA 2010)

This action was completed successfully and has resulted in the first South African National e-Skills Plan of Action (NeSPA 2010), which consequently has guided operationalisation of the national agenda of 'e-Skilling the Nation'.

2. Establish a e-Skills Research Network (ResNeS)

This action was completed successfully resulting in the establishment of the South African e-Skills Research Network. This research network, in alliance with the e-Skills Knowledge Production and Coordination Hubs, was tasked with the production and dissemination of knowledge associated with e-skills necessary for (i) the theoretical foundation of the initiative, and (ii) an informed, evidence-based, policy making.

3. Establish Network Architecture for Collaborative e-Skills Knowledge Production Hubs

This action resulted in establishing the fledging network of six e-Skills Knowledge Production and Coordination Hubs association with local universities[6] to coordinate effort across all stakeholder groups within each Province and to provide an operational platform to engage these stakeholders. This network (Figure 1) was created in order to coordinate and lead a national effort across emerging key theme areas based on collectives of excellence.

Figure 1: National Multi-stakeholder Network Architecture Model

[6] Durban University of Technology, University of Pretoria, University of the Western Cape, Vaal University of Technology, Walter Sisulu University and, recently, University of Limpopo.

4. ***Develop a proposal for the development of a transfer pricing mechanism to provide a basic level of free access to cell phone and Internet connectivity***
   This recommendation was subsequently investigated within the construct of providing a threshold level of access free to all in an analogous manner to that already provided for water and electricity. As this approach requires a legislative approach, it could not be actively pursued with the resources available at the time.

5. ***Establish a high level advisory body to develop, recommend and implement a sectoral e-skills agenda***
   Whilst it is recognised that the development of such a body is of great potential value, it nevertheless requires being representative of a wide range of competing interests. To be operationally effective it needs to have a solid policy platform which has yet to be established. Business requires some certainty and prioritises timeous follow-through action. The delivery of this recommendation still has a valuable contribution to make and it is hoped that current discourse in policy development will provide the basis for the establishment of this body as a part of the e-Skills Institute. In fact, the process for the establishment of an e-skills advisory body was initiated and a "terms of reference" document was produced.

2.2 International and South African Context

> "*Although it is undeniably global, the current crisis is taking different shapes and turns in various parts of the world. It is the first time in modern history that a crisis has erupted at a time when the main producing economy is not the main consuming economy. It is also the first time in modern history that international competitive advantages are being built on factors that have so little to do with natural endowments, geography and 'durable technological advantages*".[7]

This accurate description of the current international context comes from one of the leading European e-skills experts emphasising the sense of urgency of the e-skills development in Europe. This urgency is caused by increasing unemployment in Europe, particularly unemployment of youth (22.4%). Statistics South Africa, in its recent report[8], showed that the situation in the country is worse than in Europe. The officially stated unemployment rate for South Africa is 25.5% and the youth (15-34 years) the unemployment rate accounts for the highest proportion of this, namely 70.9%. The unemployment rate among the youth is officially recorded at 36.1%. Furthermore, the official record shows that 31.4% or 3.3 million of youth aged 15-24 years are not in employment, education or training (NEET). As these can be regarded as unemployable largely due to the lack of appropriate skills, the sense of urgency regarding skilling the nation for more equitable prosperity and reducing poverty, crime and community discord is painfully evident.

A number of African countries, including South Africa, feature among the world's fastest growing economies. However, the South African continental and global status can only dramatically change to the better if the country significantly changes its approach to building national capability (as recognised as the centrepiece of the NDP) and this can only happen by ensuring the population has the skills and knowledge necessary for the socio-economic appropriation of ICT. This is undeniably a leadership responsibility of Government. It is also a prerequisite for innovative use of new technologies, which, combined with entrepreneurship, social innovation and social astuteness, can significantly change the way people in Africa and South Africa learn, work, play and think. Thus, whilst further development of the existing training and education systems is paramount, the development of systems that build on South Africa's undeniable thirst for uptake of new forms of ICT as evidenced by cell phone adoption rates across the full spectrum of society is a fundamental

[7] B. Lanvin (2012) in *E-Skills Manifesto*, Digital Europe, www.digitaleurope.org
[8] www.statssa.gov.za/news_archive/press_statements/QLFS-Q3-2012.pdf, November, 2012

matter. Increasing the efficacy of government service delivery, education and business through the use of modern ICT is of necessity predicated by a capacity of clients, consumers, communities, families, business and SMMEs to use the technologies appropriately. In addition to offering knowledge and skills, these systems must build their skilling intervention on a full understanding of how young African people shape their social identities, use ICT (including mobile social media) and traverse learning spaces within the emerging new paradigms of these technologies.

This is also true for the vast majority of citizens who are not in formal education or training and who are not in employment that provides on-going training as an essential part of job requirements. It needs to be remembered that the African continent has the fastest adoption of cell phones across the globe and that this adoption is based on people with low levels of formal education, literacy and disposable income. As the power of mobile devices increases into so called "smart phones" and they become the default options, people will need much more than a basic understanding of short messaging (SMS) and voice to make effective use of even the basic functionality of these devices. It is, of course, in Government's interest to ensure that people are capable of making use of the new service options enabled by these new devices, that will of necessity (costs, reach, national integration, international standards, and alike) become much more common if they are to address issues of increasing inequity and poverty. Further, there is dimension of economic drift associated with incremental adoption across the user base in the developmental states when users migrate to international options before local businesses can gain profitable economies of scale or they can afford the long "loss leader" timeframes of large international businesses. The mid to long term impact of this on the economies of developmental states should not be underestimated. These matters place an increasing urgency on South Africa to proactively e-skill its population and make its people socially astute, i.e. to develop e-social astuteness.

To place South Africa's ICT and e-skills agenda in a global context, the e-Skills Institute's Value Proposition[9] highlights other key global trends that will have an impact on South Africa:

- 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; and
- The rate of ubiquitous development of ICT is moving past the current capacity and attitudes of many societal, organisational and service delivery structures for effective deployment and adoption.

In poignant contrast, the 2012 WEF Global e-Readiness report highlights South Africa's falling position (from 47th in 2007 to 72nd in 2012) in relation to other developmental states. 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 across much of society. These impacts are likely to be greatest in places where there are existing large equity gaps. Thus, developing e-skills, e-astuteness, e-social astuteness, knowledge and attitudes to successfully pursue (and, ultimately, lead) these trends, urgently requires formal national mechanisms for collaboration across the stakeholder groups. Only a national approach built on effective collaboration across and within these groups has the potential to address the immediate and future needs of South Africa in an emerging world of the Knowledge Society. But to be successful, such an effort needs to understand and be responsive to international trends, stakeholder needs, and the developmental agenda and also be demonstrably aligned with the national strategies in ways that best position South Africa in a continental context.

International trends that can influence e-skills agenda in South Africa include the following:

[9] Fully given in Appendix B of this document.

- The developing world with more than half the world's population provides the biggest opportunity for new users and 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 and attitudes of many societal, organisational and service delivery structures;
- There is an increasing and massive mismatch between the skills required and the dramatic trends to knowledge work in all economies[10];
- There is n increasing shift towards new formal structural aggregations to align diverse capabilities to address unemployment, innovation, productivity, inequity and skills development across governments, education, research & development agencies and business. This effort is coupled with a programme based approach, which separates 'form' (organisational structures) and 'function' (collaborations for impact).

In order to address the global trends and the complex matters of increasing productivity and social equality in the Knowledge Society, many countries are starting to adopt the following approaches:

1. ***Aggregating diverse specialist expertise and abilities*** in large government departments focussed on addressing the mega national priorities determined by analysis of the increasing impact of ICT in the socio-economic space;
2. ***Separating organisational structures from programme delivery*** in new forms of matrix management where individual and work group capacities are seconded, leased or contracted into programmes which are funded to deliver against national priorities. Such arrangements include proportional secondment allocations, contracted specialist staff and formal alliances between Government, Business and Education. These programmes are usually mid-to long term i.e. 3-5 years and 10-15 years and include annual reviews by external expert panels;
3. ***Establishing co-operative research centres*** *or* ***research centre of excellence models*** which undertake:
    a. Monitoring and evaluation;
    b. The development of responsive, innovative, technical and service delivery applications for mega issues (e.g. for tackling unemployment, poverty, educational and training reform etc.); and
    c. Incubation, accelerators, privatizations, start-ups, and patenting for business development, industry, and job creation aligned to interaction or knowledge work.

With these trends and approaches in mind, it is evident that South Africa has little alternative but to adapt such approaches into the local context in order to reshape its skills set and socio-economic positioning. The aim is to stop and ultimately reverse its frightening decline in the global e-readiness indicators, which are significant predictors of capacity development to address the impact of ICT on equitable prosperity and the country's global competitiveness.

Today's world is also characterised by global ***terminological shifts*** e.g. from 'Digital Divide' to 'Digital Inequality' and to 'Digital Inclusion'. This suggests that a more nuanced handling of the phenomena (analytic/descriptive and policy/prescriptive aspects) is required. The shift in focus from 'Digital Divide' to 'Digital Inclusion' is also positively deterministic as it reflects a shift in effort from monitoring and evaluating a problem to assessing a positive socio-economic **impact** achieved by interventions such as e-skilling. Hence developing an aggregated effort for and measuring the impact of the e-skills actions outlined in this plan are aligned to the government- approach to performance monitoring and evaluation.

[10] See, for example, Kurop, N., Joyce, A., Bergaud, C. & Wood, C. (2012) *e-Skills Manifesto*, European Schoolnet and DIGITALEUROPE, Brussels, Belgium.

It is also important to recognise the endorsement of the approaches being developed in South Africa by the e-Skills Institute from the ITU's Global ICT Forum on Human Capacity Development (Cape Town, October 2012 – the first time that this meeting has been held on the African continent). After a full discussion on e-SI's strategies and implementation at this forum, the e-SI approach was recommended as a model for all of the fifty-five (55) nations in attendance. Such an endorsement not only recognises e-SI's leadership in policy development and proof of concept but it also valorises e-SI's leadership within a credible international context.

At the outset of South Africa's democratic nationhood, the Reconstruction and Development Programme (RDP) formed the basis of Government's attempt to address poverty and deprivation, and to build a united, non-racial and non-sexist South Africa:

> "*No political democracy can survive and flourish if the mass of our people remain in poverty, without land, without tangible prospects for a better life. Attacking poverty and deprivation must therefore be the first priority of a democratic government*".
>
> The Reconstruction and Development Programme, 1994

Acknowledging progress made since 1994, but also the shortcomings of the RDP, the National Development Plan recognises that millions of people still remain unemployed and that many working households live on the verge of the poverty line. The deliberations for the development of the NDP have found that the RDP's achievements in fully attaining its highly desirable goals were limited by a lack of collaboration within and across various stakeholders together with a lack of responsiveness to international trends (NDP Draft, November 2011, p4 and NDP August 2012). There is no doubt that adequate appropriation of modern forms of ICT can be successfully harnessed to address both of these matters. Thus, it is suggested that urgent measures should be commenced to address the most pressing issues of poverty and deprivation through tackling high levels of unemployment, especially among the young population by improving e-skills and e-astuteness across the full spectrum of South African society.

The NDP 2030 (Aug 2012), which is based on six (6) pillars, highlights *inter alia* three priorities: (i) raising employment through faster economic growth; (ii) improving the quality of education, skills development and innovation; and (iii) building the capability of the state to play a developmental and transformative role. However, the NDP stresses that this cannot be done successfully if the capabilities of South African people remain low: this is reflected in every aspect of the six pillars that underpin the NDP; viz. Unite around a common purpose to fight poverty and inequality; Active citizenry; Inclusive economy; Build capabilities; A capable and developmental state; Leadership throughout society to work together to solve problems. These matters are at the heart of the proposed action in NeSPA 2013. This e-Skills Plan of Action brings the necessary guidelines for e-skilling the nation for equitable prosperity and global competitiveness in line with the NDP's key priority areas[11].

Furthermore, the NeSPA 2013 is clearly aligned to the fundamental philosophy and approaches of the Human Resource Development Council (HRDC). The HRDC was established to increase the responsiveness of Education and Training to the social and economic agenda and has a focus on improving the quality of offerings. It seeks to address the skills shortages in priority areas. The goals of the Human Resource Development Strategy (HRDS 2010-2030) are to: i) reduce poverty and unemployment, ii) build social cohesion, and iii) develop national economic growth and competitiveness. It recognises the need for multiple skills development and calls for all stakeholders to become involved in a collaborative approach.

[11] Please see Appendix A for more details.

The e-Skills Institute presented its work and plans to the HRDC in February 2012 as it is obvious that the e-SI and the HRDC need to maintain a close association. There needs to be an adequate alignment of intent, purpose and delivery that should be reflected in the strategic plans, the collaborations across various stakeholders and in the monitoring and evaluation efforts of all interventions aimed at improving South Africa's e-skills, e-astuteness and e-social astuteness within the context of a developmental agenda.

These developments on the national and international scenes are important for e-skills initiatives and interventions in South Africa (particularly given the prominence accorded to such an approach by the NDP) and were taken into account while performing the situational gap analysis, which forms the basis for the recommendation of e-skills actions for the next two years.

2.3 Situational Gap Analysis 2010-2012

To inform the development of national, provincial and local e-skills plan of action aimed at the delivery of positive impact on the lives of our citizens, it was necessary to undertake an analysis embracing: (i) the present state of the national e-skills agenda, (ii) considerably changed global and local socio-economic conditions, (iii) changes that have taken place in the South African educational sector, (iv) important organisational changes regarding the e-Skills Institute, (v) technological changes that require a new set of e-skills, (vi) emerging requirements for more clarity regarding the use of e-skills concepts and terminology, (vii) the desperate need for reprioritisation of government funding of the national e-skills agenda and (viii) growing demands for delivery for impact against national priorities.

2.3.1 Present State of the e-Skills Agenda in South Africa

South Africa is currently facing a number of serious challenges that are hindering national efforts aimed at an appropriate use of ICT for the socio-economic prosperity of its people:

- ***Insufficient leveraging of the potential benefits associated with ICT*** as important shortcomings in terms of (i) basic skills availability among large segments of the population and (ii) the high costs of insufficiently developed ICT infrastructure resulting in poor rates of ICT usage;
- ***Lack of coordination*** across the full spectrum of service delivery, business, education and policy frameworks is seen as a significant impediment to addressing the vitally important matter of e-skilling South Africa. This lack of coordination also negatively impacts on the enabling environment, innovation and capacity development, which are the crucial needs in addressing socio-economic equity in South Africa;
- ***Continuing unfulfilled needs*** (i) for e-skills to be embedded in all spheres of learning (primary, secondary and tertiary levels of education and training as well as in the full spectrum of society as users and consumers), (ii) to target universities (including new universities in the Northern Cape and Mpumalanga), Colleges of Education, FET colleges and community based organisations to embed e-skills in the respective curriculum to prepare learners for addressing inequity in a society dominated by new forms of ICT;
- The ***provision of e-skills*** for learners and communities based in ***deep rural***, ***rural*** *and* ***peri-urban*** areas is a huge problem due to the lack of education through Access Centres or Distance Education. Current community centres across the country are not effectively used or focussed nor are they adequately equipped or connected virtually for open distance learning (e-learning and m-learning).

These challenges require extensive and continued coordinated action by all stakeholders. It is now widely understood in South Africa that e-skills (i) form a fundamental part of building capacity for a creative and innovative workforce, (ii) enable an engaged connected society, (iii) provide an e-socially astute society able to interact effectively with new forms of service delivery and (iv) inform the expansion of an academic infrastructure to meet the challenges of an emerging Knowledge

Society which includes “massification” of free access to courseware and the increasing inclusion of credentials (for individual courses) in addition to traditional qualifications such as degrees.
The e-SI, a driving force behind the establishment of a national e-skills agenda, is currently operating and further developing six Provincial e-Skills Knowledge Production and Coordination CoLab (previously known as Hubs) (Table 1). The e-SI also puts considerable effort into developing a Research Network for e-Skills (ResNeS) while further consolidating itself at the national level as the lead institution that strives to help South Africans to achieve more equitable prosperity and appropriately prepare for the emerging economy dominated by new forms of ICT. Given the plethora of existing providers and stakeholders that do not have a collaborative architecture to align effort to national priorities (as defined in the MTSF and the NDP), e-SI is positioning itself as a national catalytic collaborator to align existing effort, identify gaps and overlaps, provide coordination leadership and develop/facilitate responses to gaps. The e-SI reflects a holistic and developmental approach to e-skilling by ensuring an effective participation of various stakeholders through the coordination platform, which is aimed at building a better life for all South Africans through the facilitation process of building new products and services.

Table 1: The Co-Labs’ hosting Universities and Thematic e-Skills Areas

Hosting University	Province	Thematic e-Skills Area
Durban University of Technology	KwaZulu-Natal	Enhanced Government e-enablement through skilling of employees and use of Web 2.0 technologies for service delivery, e-participation and e-democracy, and efficient use of broadband
University of Pretoria	Gauteng	Creative Industry and Media, including that of building the entrepreneurship base in the private sector to support a connected society
University of the Western Cape	Western Cape	e-Inclusion and social innovation that includes the empowerment of e-centre managers in the social sector
University of Limpopo	Limpopo	e-Health
Vaal University of Technology	Northern Cape, Southern Gauteng	e-Literacy
Walter Sisulu University	Eastern Cape	ICT for rural development including production and distribution, market understanding and positioning

The e-Skills Environmental Scanning effort, organised by the CoLabs in 2011 (finalised in 2012), also contributed to the gap analysis presented in this document. The scanning commenced a process of identifying existing activity, focus, integration, and understanding of what constitutes the provision of e-skills at the Provincial level. These scans also exposed the fact that the awareness of e-skills initiatives provided by a range of providers and the efforts of e-SI and the Co-Labs, was low. This lack of awareness negatively impacts on the development of a coordinated approach to e-skilling across South Africa, thereby further dissipating effort, reinforcing a ‘silo based’ approach to e-skilling initiatives. Therefore, it is obvious that this National Plan of Action must call for e-skills related awareness campaigns to help in coordinating the e-skilling efforts that South Africa shares with the global community. Hence, the gap analysis showed that in the immediate future, e-skills initiatives must be aimed at:

- The population being able to interact effectively and through the use of ICT with all relevant government information and services, business, community, education and training providers, interest groups, family and family providers;
- Workers being competent (combining technological, service delivery, entrepreneurial, business and monitoring skills);
- Developing and supporting career structure and an enhanced perception of the role of ICT across all professions in order to attract prospective practitioners to enter this career path;

- Providing leadership for the development of a comprehensive, fully integrated and formal education structure that supports the development and embedding of a range of e-skills training across the full curricula for employment and fuller participation in both a national and global society;
- Providing leadership for the development of clear guidance and frameworks to encourage the societal development of e-astuteness, e-social astuteness and e-skills that can quickly respond to current and future demand; and
- Facilitating e-skills development, training and services that can be made available on multiple platforms, particularly on mobile services.

Based on the gap analysis, the second e-Skills Summit unequivocally determined the need for the e-skilling initiative to be underpinned by an appropriate ***national e-skills curriculum and competency framework***. In response to this, the e-SI established a Curriculum Working Group that has undertaken a review of best practice with its global stakeholder partners and scoped the requirements for a new e-skills curriculum aimed at an accelerated e-skilling of South African people. The national e-skills curriculum and competency framework[12] brings guidelines and structured pathways for progression, ensuring that at each stage learners are provided with sufficient information to help make decisions on next alternative learning stages. The intention of this document is to clearly link job roles and opportunities to individuals and employers and also to be clear about learning and development goals for both life and work. Figure 2 provides an overview of the NCCF:

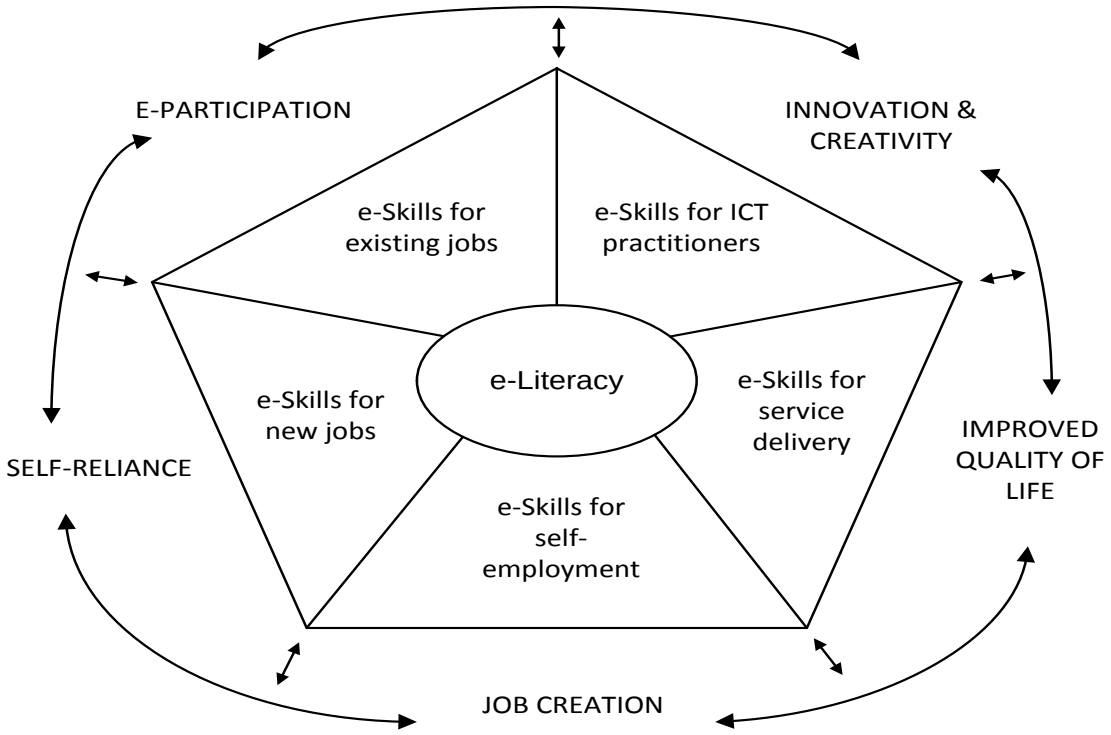


Figure 2: High Level Framework: Outline of the e-Skills National Curriculum and Competency Framework for South Africa (Source: NCCF, 2012)[13]

The gap analysis also highlighted NeSPA's (2013) support for existing higher education and training policies:

- Strategic Plan for Higher Education and Training 2010-2015 (DHET);

[12] This report, titled "Towards an e-Skills National Curriculum Competency Framework and Certification Guidelines" (NCCF), is in its penultimate completion phase (February 2013).

[13] Towards an e-Skills National Curriculum and Competency Framework and Certification Guidelines, e-Skills Institute, 2012

- New Growth Path (Economic Development Department);
- Green Paper for Post-School Education and Training (DHET);
- and
- NDP intersections with these policies.

The fact that almost three (3) million South Africa youths between the ages 18 and 24 are categorised as belonging to the so-called 'not in education, employment or training (NEET)'[14] group puts a significant responsibility on the e-Skills National Curriculum and Competency Framework and the whole e-skilling agenda in South Africa. The 2012 e-Skills Summit urged the Department of Higher Education and Training (DHET) to ***closely focus on the Further Education and Training (FET) sector*** as the Centre for Higher Education Transformation predicts enrolments of 291,454 FET college students in 2020 and 1,179,095 enrolments in 2030 and graduates are projected to increase from 71,423 in 2010 to 204,018 in 2020 and 825,367 in 2030[15].

2.3.2 Technological Changes, New Set of Skills and Emerging Conceptual Requirements

The gap analysis presented here has revealed that the rapid capacity and paradigm changes occurring in the ICT space are having significant impact on the way businesses, governments and societies conduct their affairs. The shift in appropriation of ICT is changing value propositions across the breadth of the socio-economic platform and this has particular ramifications for developmental states. The unprecedented escalation in capacity, affordability, mobility, differentiation and availability of ICT devices as well as the rapid shift towards high quality displays on mobile devices pose a significant challenge in e-skilling people within their current jobs, better preparing people for existing vacancies, creating e-capacity for emerging jobs and in creating an e-social astuteness in the citizenry for achieving more self-reliance and more equitable prosperity.

Hence this National Plan of Action recognises a need for constant monitoring and analysis of the technological changes in order to continuously influence modification of e-skills curricula though the National Curriculum and Competency Framework (NCCF). It also recognises that the only sustainable way for South Africa to position itself in this emerging world dominated by ICT, is to instil a capacity in its people to adapt to the new technologies and to appropriate them into their socio-economic reality, i.e. the development of an e-social astuteness. A failure to do this will only exacerbate societal inequity and create unsolvable societal issues. In this regard, the following widely accepted technological trends[16] over the next three (3) years have the potential to affect individuals, businesses and societies: (i) Increased use of mobile devices and applications, (ii) context-aware computing and social media, (iii) "Internet of Things" [17], (iv) use of application stores in business, (v) "Bring your Own Device" (BYOD), (vi) next generation of advanced analytics and open data, (vii) In-memory computing, (viii) Cloud Computing and (ix) "green" computing. These obviously highlight the need for a new set of e-skills and the requirement to build a level of e-astuteness right across South African society as users, clients, service deliverers, business developers, innovators within business, educators, trainers, communities and families. Leaving it to the existing system has proved to be disastrous as evidenced by the drop in South Africa's global e-readiness indicators from 47th in

[14] Cloete N (ed.) (2009) *Responding to the Educational Needs of Post-School Youth: Determining the scope of the problem and developing a capacity-building model*, Cape Town: Centre for Higher Education Transformation.

[15] Perold, H., Cloete, N. and Papier, J. (2012) *Shaping the Future of South Africa's Youth*, Centre for Higher Education Transformation, Wynberg, South Africa.

[16] See, for example, Gartner's annual list of top 10 strategic technology trends: www.gartner.com/technology/research/top-10-technology-trends/

[17] Finnish Strategic Centre for Science, Technology, and Innovation (2011*) Internet of Things Strategic Research Agenda (IoT-SRA)*, Finnish Strategic Centre for Science, Technology, and Innovation: For Information and Communications (ICT) Services, businesses, and technologies, Version 1.0, 1st September 2011.

2007 to 70th in 2013. The impact of this on socio-economic growth, business development, inward investment, exports, unemployment, education levels and equity cannot be overestimated.

It is noticeable that the trends outlined above are heavily influenced by the growing importance of new levels of connectivity, decreasing costs for connectivity and an unprecedented rise of mobile computing. This will have significant influence on skilling as iTWeb, for example, has reported[18] that if South Africans, aged between 18 and 30, had to choose only one ICT device, 28% of respondents preferred a smartphone, while 35% favoured a laptop, 24% would choose a tablet and only 11% of the South African respondents would use desktop computers. A staggering 71% of the respondents said that mobile applications are important to their daily lives and work. Hence, it is crucial to recognise that the 21st century requires a new approach to the use of rapidly developing ICT devices. Developing the capacity to produce new understanding and knowledge and their effective use to advance the economy and society through innovation, job creation, communication and information management, requires a new and broadly defined set of skills that includes:

- Skills to use the ever advancing technologies (e.g. mobile devices, cloud computing); and
- To use the acquired skills in the economic or social context; through
- Developing capabilities and attitudes to effectively use skills for the individual (e-astuteness) and societal (e-social astuteness) advancements.

It is recognised that skills for the immediate future in the 21st century are needed not by an elite few but by the whole nation. The ability of our citizens to assess the ever-growing information deluge (at the workplace or at home) in a socially ***astute way*** (by developing e-social astuteness) will enable them to make more reasoned decisions regarding their work, business or social life. The analysis undertaken by e-SI also recognised that the technological changes require a new set of skills and a ***contextual conceptual clarity*** of definitions, focus and effort within an ***e-skills framework*** suitable for a South Africa within the context of an emerging ***developmental state***. In that regard, this e-Skills Plan of Action gives, in further sections, guidelines for devising an e-Skills Taxonomy and building an e-Skills Ecosystem.

2.3.3 Reprioritisation of Government Funding and Delivering for impact

In today's world distressed by a prolonged global crisis, most governments are forced to do more with fewer resources. The challenge in this scenario is usually experienced as a trade-off between costs and performance. In order to avoid this ostensibly inevitable trade-off, the funding of the e-skills agenda in South Africa will require a more effective way that includes reprioritisation of government funding. The analysis of e-skilling approaches in South Korea, Mexico, Cuba, Kenya, Rwanda, United States, Ireland, UK, Australia and New Zealand showed that formalised integration and aggregation across various stakeholders are essential requirements for success[19]. For example, Australia, which has one of the largest broadband initiatives (per capita) in the world, has formally amalgamated government departments, established new vehicles to both focuses on leveraging ICT into improving GNP[20] and to provide competitive funding for mid-long term collaborative. Kenya has established the ICT Board reporting directly to the President[21] and with a national mandate that leverages line department support as well as providing a single entry point for business, inter-national agencies and funding bodies. Mexico has provided the base for universities to directly link with business and 2287 Community Learning Centres (CLCs) in ways that leverage business develop-ment using ICT (including acceleration programmes) and for more than 100,000 students to benefit from direct engagement with the CLCs as mandated learning requirements.

18 iTWeb, (2012) *Smartphones now rival laptops in SA*, Johannesburg, 3 Dec 2012: Reporting on the 2012 Cisco Connected World Technology Report.

19 See, for example, Cooperative Research Centres at www.crc.gov.au

20 NICTA at www.nicta.com.au

21 See, for example, www.ict.go.ke

However, examination of these examples revealed that the governance and size (both large and small) of a number of countries whilst providing useful knowledge have limitations for adaptability and scalability in the South Africa context. From these experiences, this NeSPA 2013 advocates the development of a national approach to e-skilling by collaborative budget and resource allocations, aligned to e-skills development, into a single coordinated approach with aligned targets and accountabilities. Further, it recommends that a vehicle that reflects a combined adaptation of the approaches of the NICTA and the cooperative research model (Australia) with mid and long term secondments across various stakeholders be established. It also recommends that the e-SI CoLabs be strengthened with formal resource allocations from research, education, public service, trade, rural development and USAASA so that service delivery in these agencies can be better aligned at the provincial and local levels.

3 Towards Delivery for Impact

Impact is the **demonstrable contribution** that an intervention makes to society and the economy. In order to make a demonstrable contribution to e-skilling the nation for equitable prosperity and global competitiveness, this National e-Skills Plan of Action (NeSPA 2013) has considered the global and South African needs for an effective adoption and socio-economic appropriation of the contemporary information and communication technologies. The increasing global needs that need to be considered for developing a delivery mechanism for impact are outlined above in Section 4.1. In overview summary these are:

- The population needs to be able to interact effectively with business, government and education in the new environment;
- Workers need to be competent in the rapidly changing environment;
- There is a high need to enhance the perceptions of ICT as a career path;
- A relevant educational structure is required;
- Leadership is required to develop e-astuteness and e-social astuteness; and
- All approaches must be available on multiple platforms.

In responding to the identified need to achieve an e-literate nation by 2030[22], the e-Skills Institute has identified the following priority areas for intervention:

- ***e-Inclusion*** and ***Social Innovation***, which includes e-skilling Smart Community Knowledge Centre managers in the social sector;
- ***e-Participation*** in community, social, education, innovation and governance processes particularly involving young South Africans;
- ***e-Astuteness*** to build a social capacity to quickly adapt, appropriate and use the emerging capacities of ICT devices within a developmental context to deliver personal, agency and community benefits as articulated in the NDP and the RDP;
- ***ICT for rural development*** including rural production and distribution, understanding markets and positioning for rural produce, the development of aligned business such as the Creative Industries, improved government service delivery for rural areas, communications, environmental monitoring and climate forecasting aligned to agricultural development, provision of local socio-economic alternatives to reduce urban migration and increasing community interaction between and across rural communities;
- Enhanced Government ***e-Enablement*** through the skilling of employees and the use of Web 2.0 technologies for service delivery, ***e-Participation*** and ***e-Democracy***, and efficient use of broadband services;
- ***FET ICT skills development***, ***Multimedia training*** and ***Networking training*** in the educational sector;

[22] Thus supporting the New Development Plan – Vision 2030

- Building an ***e-Practitioner*** base within the country which includes the skills of business analysis, application development and the management of various kinds of information systems;
- ***Creative Industries development***, including building the ***e-Entrepreneurship*** base in traditional cultural pursuits in the private sector; and
- ***Free and Open Source Software*** (FOSS) usage for local socio-economic development.

Many of these interventions have already commenced (if only at the rudimentary level in some instances) over the last two years, as a result of implementing the National Plan of Action (NeSPA) 2010. This iteration of NeSPA (2013) points to the necessity of continuing with the escalation collaborative effort to deliver visible and measurable impact on these proposed activities. On the other hand, the impact of new worldwide developments on the local efforts combined with the impact of rapid technological changes mandate a new approach and dynamics. Hence, this e-Skills Plan of Action (NeSPA 2013) recommends that the future delivery of e-skills for socio-economic impact be based on:

- Continuing with the actions already started in the past two years, i.e. building on NeSPA 2010, and
- Introducing new dynamics and new interventions to respond to the changing environmental conditions (including technology, evolving global praxis, emerging local policy shifts, local dynamics across government, business, education, civil society and organised labour, the emergence of the NDP).

3.1 Building on NeSPA 2010

The analysis of the implementation of NeSPA 2010 has found that three of its key recommendations have been implemented and that the operating environment opened up opportunities that overtook the prospects for delivering on the remaining two key recommendations. The opportunity to revamp NEMISA (National Electronic Media Institute of South Africa), a Section 21 Company, and to combine it with the e-Skills Institute has provided a significant opportunity to advance the mandate of the e-SI. Being able to operate outside of the government public service but aligned to and responsible to the Minister of Communications addresses a key issue raised by business in developing a responsive approach. All of the legal matters have now been addressed and the new entity will formally commence operations at the start of the 2013-14 fiscal year. In going forward, NeSPA 2013 will continue with the key recommendations of NeSPA 2010, refocusing where necessary to respond to changing circumstances and build on these efforts with the recommendations of the e-Skills Summit 2012. These actions include:

- Strengthening effort to increase awareness and to promote advocacy around current and future e-skills initiatives and continuing support for the highest national and international development strategies and agendas (e.g. NDP, MTSF, WSIS, MDGs);
- Advancing and expanding the provincial e-Skills Knowledge Production and Coordination CoLabs (Hubs);
- Proliferating and accelerating multi-stakeholder participation at all levels (national, provincial and local);
- Aggregating of e-skills effort across all stakeholders (KSPs) and at all levels (national, provincial and local); and
- Strengthening the development of ResNeS.

3.1.1 Strengthen Awareness of e-skills initiatives

Recent visits to a number of countries (e.g. Mexico, US, UK, Ireland, Kenya, Rwanda, Australia, New Zealand) found that the impact of e-skilling on the national socio-economic development in these countries is significant and that the approach for e-skills development in South Africa has benefitted from these interactions. This is evidenced by the findings of the United Nations' International

Telecommunications Union (ITU) recent Global IT Forum on Human Capacity Development[23] that urged the other 55 countries involved to emulate the example developed by the e-Skills Institute in South Africa and implement similar e-skills programs for their people[24]. It specifically underpins this recommendation by highlighting the approaches by the e-Skills Institute for collaboration, integration, organisational network architecture, the links to national developmental policies and to approaches for monitoring and evaluation. Given the recognition by key international bodies of the sound base that the e-Skills Institute has established, it is now important to undertake a national awareness campaign to gain the understanding, support and recognition that the effort requires from the highest levels of Government, Business, Education, Civil Society and Organised Labour. It is envisaged that a programme involving all available channels (e.g. SABC, community radio, and telcos and all government programmes) should be developed. Table 2 outlines NeSPA 2013 recommended actions to develop a better understanding and awareness of the e-skills platform that has been developed thus far.

Table 2: NeSPA 2013 Recommended Actions for Awareness and Advocacy

NeSPA 2013 Recommended Actions:
1. ***Design*** and ***implement*** a combined national ***advocacy*** and awareness ***campaign*** for recognising and embedding the essential requirement of a collaborative and coordinated e-skills effort into stakeholder work plans.
2. Approach the ***SABC*** with a proposal ***to define specific ways of embedding e-skills awareness in all of its local programming***, its current affairs, its sporting programmes, its news reporting and its internal promotion programmes.
3. ***Identify*** and ***implement innovative advocacy*** and ***awareness campaigns*** at the CoLabs and Smart Community Knowledge Centres levels.

3.1.2 Align effort to National and International development strategies

3.1.2.1 Medium Term Strategic Framework (MTSF) 2009-14

The NeSPA 2013 will continue to support the Medium Term Strategic Framework (MTSF) 2009-14[25] as it is still a national strategy that all public service efforts (government and education) need to report against. As stipulated in NeSPA 2010, the MTSF lays out 10 issues and 12 impact goals. Significant achievements in all of these targets will require increased levels of e-skills and e-social astuteness if they are to be successful and sustainable in the medium to long-term future. The challenge for the NeSPAs (2010 and 2013) in addressing the goals set out in the MTSF is: (i) to find the ways to deliver e-skills to communities so that they have visible impact on the MTSF goals and (ii) then to monitor the process in ways that inform continuing effort within the context of a developmental state. Table 3 (below) shows the MTSF strategic priority areas and goals recommended for support by NeSPA 2013.

Table 3: The MTSF 2009-14 Strategic Priorities supported by NeSPA 2013

MTSF Strategic Priority	**NeSPA 2013 Recommended Action**
SP1.1 SP1.2 SP1.3	***Speeding up growth*** and ***transforming*** the ***economy*** to ***create*** decent **work** and ***sustainable livelihoods***.
SP1.1	e-***Skills*** development ***interventions*** for creating a more ***inclusive ICT enabled socio-economic platform for a mixed economy in ways that address inequity of opportunity***.

[23] Held in Cape Town, 22-25 October, 2012; the first time this event has been held in Africa.
[24] ITU (2012) Global ICT Forum Report, page 8, Global ICT Forum on Human Capacity Development, 22 – 25 October 2012, Cape Town, South Africa.
[25] www.thepresidency.gov.za/docs/pcsa/planning/mtsf_july09.pdf

SP1.2	***Strengthening competitiveness*** and ***promoting SMME development through increasing internal efficiencies, redefining value propositions, helping define "online" processes to build local connections to local businesses, facilitating e-training and e-skills development in ways that make new opportunities for SMMEs more visible.***
SP1.3	Ensuring that the ***delivery of e-skills keeps up*** with ***global socio-technology trends***.
SP3	Comprehensively ***develop strategy linked to land*** and ***agrarian reform*** and ***food security*** by: • improving service delivery to ensure quality of life by providing e-skills for the use of appropriate ICTs to overcome physical and other impediments, and • developing appropriate e-skills training programmes to support sustainable socio-economic development in rural communities.
SP4	***Strengthen*** the ***skills and human resource base*** by ensuring that training and skills development initiatives in the ICT domain respond to the requirements of the economy, rural development challenges and social integration. Building an e-social astuteness to enable all people (whether in work, in education or not; women, disabled, youth, the aged) to participate more equitably in a developmental agenda that will increasingly be dominated by new forms of ICT.
SP7.1	• ***Building cohesive***, ***caring*** and ***sustainable communities***; • Through the delivery of e-skills for development, ***expanding opportunities*** for the ***poor*** to ***access*** the ***labour market***; • Helping all people to make use of social media in ways that can help address timeous access to relevant information for work, education, cohesive lives, dealing with disaster, building safer communities, participating in governance processes, identifying opportunities for community based socio-economic development.
SP7.2	**1.** ***Building cohesive***, ***caring*** and ***sustainable communities***; **2.** ***Promote social cohesion initiatives***, including a shared value system and a greater sense of community solidarity by using modern ICTs.
SP10	Help in ***building*** a ***developmental state*** including ***the improvement*** of ***public services*** and ***strengthening democratic institutions*** by: • Improving the delivery and skills for public services through the delivery of e-skills for government (e-Skills4Gov) • Improving the capacity of people to access all forms of services electronically, and • strengthening democratic institutions by delivering e-skills necessary for e-Participation/ e-Democracy.

3.1.2.2 National Development Plan 2030

The vision of the South African development in the next 18 years has been clearly stipulated in the National Development Plan 2030[26] and is generally aimed at eliminating poverty and reducing inequality. The core focus of this Plan is developing the capacity and capabilities of South African people and the country as a whole to become active participants in a modern mixed economy. The capabilities required include those that can be provided through traditional education and work based training as well as a societal based learning system that valorises a shared responsibility and commitment across all societal layers. This requires a policy platform for a capable state to support leadership from all sectors of society and a pact for mutual sacrifice and trust. Evidence from mixed economies around the world indicates that success in this environment is heavily dependent upon a government led intervention to e-skill its people and to make them e-socially astute. To achieve this, the NDP suggests the following:

- Active efforts and participation of all South Africans in their own development;
- Redressing the injustice of the past effectively;

[26] Available at : www.npconline.co.za/medialib/downloads/home/NPC%20National%20Development%20Plan%20Vision%202030%20-lo-res.pdf

- Foster economic growth and higher investment and employment;
- Rising standard of education, a healthy population and effective social protection;
- Strengthening the link between economic and social strategies;
- An effective and capable government;
- Collaboration between the private and public sector; and
- Leadership from all sectors of society.

In order to achieve these aims, the following challenges should be recognised and addressed:

- Too few people work;
- The standard of education for most black learners is of poor quality;
- Infrastructure is poorly located, under-maintained and insufficient to foster higher growth;
- Spatial patterns exclude the poor from the fruits of development;
- The economy is overly and unsustainably resource intensive;
- A widespread disease burden is compounded by a failing public health system;
- Public services are uneven and often of poor quality;
- Corruption is widespread; and
- South Africa remains a divided society.

Hence, developing and upgrading capabilities to enable sustainable and inclusive development requires new approaches and a new mind-set which should result in:

- ***Creating jobs*** and ***livelihood***. It is envisioned that this will happen through creating 11 million jobs by 2030 by;
- ***Expanding infrastructure***, i.e. targeted development of transport, energy, water resources and ICT networks;
- ***Transforming*** to ***low-carbon economy***;
- ***Transforming urban*** and ***rural spaces*** by creating conditions for more humane and environmentally sustainable living and working environments;
- ***Inclusive rural economy***;
- ***Improving education, innovation*** *and* ***training***;
- ***Providing quality health care***;
- ***Building*** *a* ***capable state***;
- ***Positioning South Africa*** in the world;
- ***Building safer communities***;
- ***Ensuring better social protection***;
- ***Fighting corruption*** and ***enhancing accountability***; and
- ***Transforming society*** and ***uniting the nation***.

The NDP recognises that this is not possible without having skilled people at all levels of society. From this National e-Skills Plan of Action viewpoint, it is important to stress that this envisaged development will happen in an emerging socio-economic paradigm which is characterised by the pervasiveness and extensive use of a rapidly developing ICT platform. Hence, development of e-skills and e-competences form an indispensable part of the nationwide amplification of capabilities and competences required for achieving more equitable opportunities in a mixed mode economy.

Table 4 outlines the ***NeSPA 2013 Recommended Actions*** that will support the NDP goals outlined above. These NDP goals will be supported through policy development and monitoring and evaluation functions of the new e-Skills entity at the central level, the NCCF, activities of CoLabs and Smart Centres and also through the relevant e-skilling activities of the participating stakeholders.

Table 4: The NeSPA 2013 support for the National Development Plan 2030

NDP Goal	NeSPA 2013 Support Action
Creating jobs and livelihood	**1.** e-***Skilling South African people*** (particularly the young population) for: • ***employment*** or • ***starting*** and ***running their own business*** • ***being able to make best use of online support systems to access current information, services, customers***, etc. **2.** ***Developing e-social astuteness***.
Expanding infrastructure	**1. Building relevant economic infrastructure** to support the enhancement of ***ICT professional e-practitioner skills***, which are indispensable for building quality ICT networks. **2.** ***Developing a capable base of users*** across the full spectrum of South Africa's geography providing increasing economies of scale to support return of investment (ROI) of infrastructure development. Experience from all around the world demonstrates that without a well-developed and well-delivered awareness and training programme, uptake of new access capacity is notoriously low. A failure to address this matter not only creates perceptions of economic waste but also provides significant competitive advantage to countries that address this matter and develop an e-socially astute nation.
Transform to low-carbon economy	***Development*** of ***e-skills*** needed for supporting ***sustainable economic development***.
Transforming urban and rural spaces (environmentally sustainable living and working)	***Facilitating and coordinating the development*** of ***e-skills*** needed for ***supporting sustainable*** socio-economic ***community development in urban and rural areas***. An e-socially astute community can better plan its development and responses to opportunity. This includes managing aggregation of supply and demand to leverage production options, adjusting supply to prices, responding to weather, planning labour supply, aggregating payments and income through EFT, monitoring environmental pressures, reporting accurate relevant data, and alike.
Inclusive rural economy	• ***Supporting*** and ***delivering e-skills for digital inclusion***; • ***Supporting*** and ***delivering agricultural development*** related ***e-skills*** (particularly e-skills for small-scale farmers). • ***Identifying*** and ***establishing new industry/business*** that can sit alongside and ***support agricultural development*** e.g. cultural industries and crafts which can use the same supply chains. • ***Online aggregation of supply and demand*** to leverage better consistency of supply and direct returns to producers. • ***Developing online community based approaches to resource management*** and ***responses to climate variations and disasters***. • ***Developing new niche markets nationally*** and ***internationally*** that can be ***identified and supplied online***. • ***Developing*** a ***coordinated online approach*** to ***eco-tourism***.

Improving education, innovation and training	• ***Fostering e-learning*** (for lifelong learning, required for an effective participation in a mixed economy increasingly dominated by new forms of ICT); • ***Recognising and responding to the new trends in online education*** including MOOCs (Massive Open Online Courses), a shift from degrees to individual course credentials and a flexible 'just in time' approach which changes the scope and the dynamic between 'education' and 'training'. • ***Supporting development of e-Skills for innovation***, ***entrepreneurship*** and ***creative industry***, particularly for Social Innovation; • ***Encouraging and assisting universities and FET colleges to respond to the emerging education and training environment*** with new approaches that give their graduates one or all of the following set of e-skills: o e-practitioner skills; o e-business skills; o e-user skills; o e-literacy skills; o mobile e-skills and e-competences; o e-leadership skills; o e-social media skills for social cohesion; o e-training skills to assist community development.
Providing quality health care	***Developing e-Health Skills***. Developing an e-social astuteness across society to enable better use, adoption and efficacy of e-health initiatives.
Building a capable state	**1.** ***Building a community wide e-social astuteness*** is at the core of building a capable state with a mixed economy in a developmental context. **2.** ***Responding to current developments in ICT*** (increasing capacity, mobility, accessibility, affordability and display capability) which suit rapid expansion in developing mixed mode economies is an absolute necessity. Failure to do so will have serious socio-economic impacts for economies currently heavily dependent upon resources (as South Africa is and as recognised by the NDP). **3.** ***The development and delivery of a nationally prioritised e-skills programme*** is an essential matter in building a capable state that can provide more equitable opportunities for its people and its businesses. A failure to recognise this need and apply new approaches and coordinate resources to address this matter has seen South Africa's global e-readiness rankings drop from 47th (2007) to 72nd (2012). This means that other mixed mode economies are responding in ways that give them advantage. **4.** This priority must include an ***embedded range of levels of e-skills capability training and assessment*** across the full range of the public sector in South Africa. For useful effect a requirement for the successful completion of these courses needs to be included in future promotions and new appointments. **5.** ***e-Skilling citizens*** for effective capacity to use new online

	services is a priority to make the whole system work effectively. This matter underpins delivering success for many of the goals of the NDP and the MTSF.
Positioning South Africa in the world	1. ***Giving** the **SA population e-skills for Digital Inclusion*** and other e-skills (e.g. e-User Skills, leading to e-astuteness and e-social astuteness) in order to achieve a more equitable prosperity thus fostering innovation, creativity and economies of scale that can provide continuity of supply required in the international market. 2. ***Supporting building*** of ***e-Business*** and ***e-Practitioner Skills*** for the global competitiveness of the South African economy. 3. ***Developing an e-astute society that is globally recognised*.** An essential component of establishing and maintaining South Africa's global positioning and credibility is being recognised as a modern developmental economy that can be responsive to foreign investment for its national economic growth and to be a continental entry point.
Building safer communities	***Developing e-social astuteness skills that can support agency based efforts to make communities safer*.** The "doing to" and "doing for" models delivered by Governments have been found wanting in delivering safer communities all around the world including South Africa. Social media and new forms of ICT devices can play a significant role in making communities safer and in reducing the impact of disasters (fires, floods, social unrest, drugs, and crime). The key matter here is ensuring that people have the skills, the understanding and the willingness (resulting from social cohesion) that can sit alongside and empower a system response mechanism. Many parts of the world are now making effective use of new ICT technologies to make communities safer and more cohesively responsive to both disaster and community unrest that is a direct response from social inequity.
Ensuring better social protection	Facilitating an integrated and collaborative response to better utilisation of modern ICT devices based on a widespread approach to developing ***e-social astuteness*** across society and in service delivery systems. Specifically this includes ensuring that service delivery functions and the community have the range of skills in the categories outlined previously in this document.
Fighting corruption and enhancing accountability	***Developing an e-social astuteness across South African society is fundamental to addressing corruption and enhancing accountability*.** Specifically this includes ensuring that service delivery functions and the community have the range of skills in the categories outlined previously in this document.
Transforming society and uniting the nation	The rapid increases in the capacity, mobility, accessibility, affordability and display capability of emerging ICT devices are already transforming society in South Africa. These advances ideally suit nations with a developmental agenda and a mixed mode economy in an unparalleled manner. The question is whether this is happening in a manner that increases equity of opportunity. The dramatic decline in the global rankings of South Africa's e-readiness rankings (from 47th in 2007 to 72nd in 2012) provides clear evidence that there is increasing inequity of opportunity. This situation requires ***an immediate national***

	response to transform South African society and unite the nation in an environment that is being increasingly dominated by new forms of ICT. This NeSPA outlines the need and the way forward in meeting this NDP goal.

3.1.2.3 International developmental initiatives and cooperation

In addition to supporting the highest national developmental strategies and agendas, the mandate of the e-Skills Institute is also to support South Africa's commitment to the World Summit on the Information Society's (WSIS)[27] Plan of Action, the Millennium Development Goals (MDGs)[28], and South Africa's strong endorsement of the strategic intent of NEPAD[29].
While the MDGs and NEPAD are indirectly supported, through supporting MTSF and NDP, the WSIS Action Plan is supported directly through sharing the same conviction that "e-Skills are essential in empowering individuals so that they can participate fully as citizens of the Information Society, and take advantage of all the opportunities before them: opportunities for employment and wealth creation, for taking advantage of innovative education and learning strategies, and for using new life-enhancing services, such as interaction with public authorities"[30].

NeSPA 2013 also acknowledges the e-Skills Institute's support to other international developmental programmes such as Creative Industries for Development run by the United Nations Conference on Trade and Development (UNCTAD)[31]. This support bears exceptionally high importance for South Africa (and other developing countries) as it has been demonstrated (e.g. UNDP, UNCTAD) that Creative Industries were least affected by the Global Financial Crisis (GFC) and its flow-on effects during and post 2008. Further UNCTAD's investigation has found that the development of an embedded creative industries effort has the most potential for assisting developmental states into a more sustainable socio-economic growth path.

In the last four years, the e-Skills Institute has also established e-skills related cooperation with a number of government, business, educational providers and consular partners in a number of countries including Kenya, Rwanda, Mexico, Ireland, UK, South Korea, Australia, and New Zealand and a range of global institutions including UNDP, UNCTAD, ITU, World Bank, Tec de Monterrey, (Mexico) EIDOS (Australia). These institutions are regarded as Global Partners in the e-SI's efforts to develop and facilitate the delivery of an integrated, collaborative and responsive platform for e-skilling South Africa and to improve its global e-readiness position with a clear focus on aligning effort to the key national strategic goals. Developing a substantive, integrated and collaborative mechanism to respond to and leverage from the international environment is a vital success factor identified in the NDP.

The NeSPA 2013 recommendations to enhance international developmental initiatives and cooperation are outlined in Table 5.

[27] www.wsis.org
[28] www.mdgafrica.org/achieving_mdg.html
[29] www.nepad.org
[30] World Summit on the Information Society (WSIS 2005): Tunis e-Skills Report. Tunis.
[31] www.unctad.org

Table 5: The NeSPA 2013 recommended actions for international developmental initiatives and cooperation

NeSPA 2013 Recommended Actions
• **Develop a formal relationship with a number of South African High Commissions and Embassies**. Commencing with **Australia**, New Zealand, Kenya and Rwanda, Mexico, UK and Ireland, develop programmes to facilitate the development of formal, targeted and active partnerships that can assist the development, impact and integration of e-SI programmes in South Africa.
• **Make formal requests** to these **High Commissions and Embassies** to become **proactively involved** in **identifying** and **supporting opportunities** that exist in these countries.
• **Work with the UN Coordinator of South Africa** regarding the opportunities to create a regional platform for e-skills collaboration across the UN bodies (i.e. World Bank, ITU, UNESCO, ILO, UNIDA and UNCTAD).
• Ensure that the **opportunity presented** by the **ITU** at the recent Global ICT Forum on Human Capacity Development/e-Skills Summit 2012 (i.e. aggregation, knowledge creation and sharing) will **form the basis** of the above **discussions.**

3.1.3 Advance and expand provincial e-Skills Knowledge Production and Coordination CoLabs (Hubs)

One of the NeSPA 2010 recommendations was to establish nine (one per province) e-Skills Knowledge Production and Coordination CoLabs (then called Hubs) aimed at bringing all stake-holders, agencies and programmes together in order to achieve an optimal socio-economic impact against national strategic goals. These CoLabs should also be the basis of the collaborative multi-stakeholder network architecture that can lead South Africa into a proactive position for more equitable prosperity and global competitiveness in a developmental mixed economy dominated by emerging ICT capacity, mobility, accessibility and affordability.

To date the e-Skills Institute has established five CoLabs (Gauteng, Eastern Cape, KwaZulu-Natal, Northern Cape and Southern Gauteng, and Western Cape). The sixth CoLab is currently being established in the Limpopo Province. These CoLabs are strategically placed at higher education institutions (universities), where they can become the focal points for collaborative effort across Business, Government, Education, Civil Society, Organised Labour and Global Partners. Universities can provide a credible independent space that allows a more open involvement of all stakeholder groups and entities. These CoLabs can be crucial for coordinating existing and initiating new, coordinated, efforts in e-skills, aimed at the delivery of impact within the scope of the MTSF 2009-14 and the NDP. CoLabs are also tasked to develop appropriate evaluation processes and to act as knowledge hubs as well as to inform pedagogy, training, policy development and project delivery. All of these CoLabs have local management committees and are being coordinated through their own collective as well as a central entity, the e-Skills Institute. The Provincial CoLabs have already commenced interacting with a number of e-centres already established by the respective governments and State Owned Companies at the provincial or local level. These centres are located in urban, peri-urban, rural and deep rural areas in the respective province they serve. It is anticipated that all of these centres will be administered by the centres' managers who have undergone appropriate e-skills training at the CoLabs (commencing in the Western Cape) and who also have a role of spreading e-skills within their local communities. The NeSPA 2013 recommendations for advancing and expanding provincial e-Skills Knowledge Production and Coordination CoLabs are outlined in Table 6.

Table 6: The NeSPA 2013 recommendations for advancing and expanding provincial e-Skills Knowledge Production and Coordination Co-Labs

NeSPA 2013 Recommended Actions
1. Since the five CoLabs, operating from five universities (DUT, UP, UWC, VUT and WSU) are now established in Phase I of their evolution, the e-SI will: • ***Commence a process of resourcing and positioning the CoLabs*** within on-going formal structures of Universities, Provincial Governments and other key stakeholder groups. • ***Continue with establishing the CoLab in the Limpopo Province at the University of Limpopo***; • ***Establish Co-Labs in Mpumalanga, Northern Cape, Free State and the North-West Province***.
2. Having positive experience with the existing e-centres, but also realising that these centres can play an even more significant role in achieving the goals of MTSF 2009-14 and NDP 2030, it is envisaged by this National e-Skills Plan of Action that these e-centres be transformed into Smart Centres. These ***Smart Centres*** will be ***responsible for*:** • Training and learning; • Nurturing local talent (particularly knowledge workers); • Enabling Digital Inclusion; • Support for entrepreneurship and job creation; • Fostering social innovation; • Developing e-social astuteness.

Although Smart Community Knowledge Centres should be established in all geo-spatial areas, it is a priority to establish these centres in peri-urban, rural and deep rural areas in order to address growing inequalities, poverty and joblessness in these communities and put them on the road towards a more equitable and sustainable basis focussed on responsive approaches to local community socio-economic needs. As many of the existing community e-centres belong to various government agencies, their transformation into the Smart Community Knowledge Centres will need to be negotiated with their owners, in conjunction with the local communities as the direct beneficiaries of the e-skilling actions. It is noted that in some situations it may be desirable to establish new centres that can be more appropriately positioned to respond to the environmental issues and the integrated needs of society and communities as is raised in this document. The coordination and integration of the Smart Community Knowledge Centres into a national strategy would align effort to strengthen the delivery of the National Rural Development Strategy.

3.1.4 Proliferate and Accelerate Multi-stakeholder Participation at all levels

The network architecture model is designed to operate in such a way that the value proposition is collaboratively shared between stakeholders in ways that also make sense to the individual stakeholders. It is ***based*** on the ***partnership inputs*** required for creating, marketing and delivering a value proposition with the goal of ***maximising outputs, outcomes*** and ***impact*** against ***complex* strategic goals** pursued by various e-skills stakeholders in Government, Business, Education, Organised Labour and Civil Society (Figure 3).

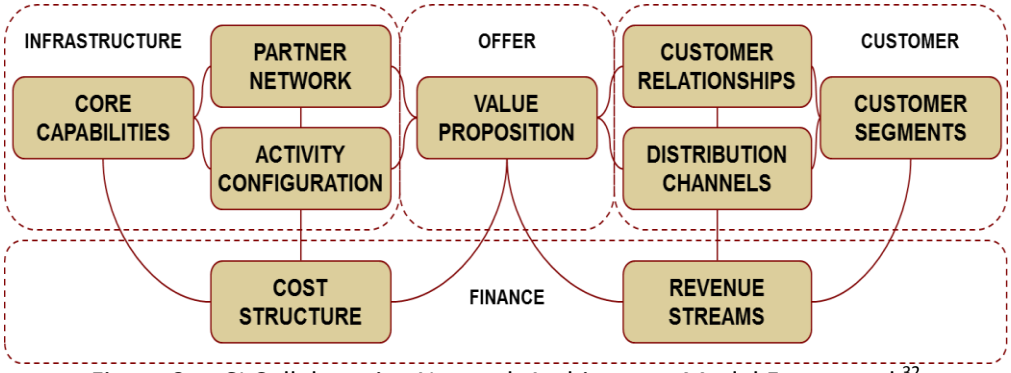


Figure 3: e-SI Collaborative Network Architecture Model Framework[32]

The e-SI Collaborative Network Architecture Model Framework is composed of three main elements: (i) Infrastructure, (ii) the Offering and (iii) the Stakeholders Interest or Input. The main elements are briefly described in the following sections. The diagram in Figure 3 depicts an organisational network architecture that values capabilities and network relationships to create a shared value proposition.

3.1.4.1 Network resource architecture

Multi-stakeholder Network includes the following main participants:

- Business (Private Sector - South African, Continental and International);
- Education (Universities & FET Colleges – South African, Continental and International);
- Learners (formal and informal – accredited and non-accredited – literate and non-literate)
- Research institutions (South African, Continental and International)
- Policy Development bodies (South African, Continental and International);
- Civil Society (NGOs, NPOs, CBOs South African, Continental and International);
- Organised Labour;
- Government (South African at all levels and international government agencies)
- Global Development Partners (e.g. UN bodies, World Bank, ITU, Cisco, ICDL); and
- Donor Agencies.

The ***e-SI Network Architecture Model relies*** on the following **Core Capabilities**:

- The delivery of an integrated collaboration architecture across the above listed stakeholders for building e-social astuteness in support of the Knowledge Society, in general, and impact on the NDP 2030 and MTSF 2009-14 goals;
- Employment readiness and increased business effectiveness by appropriately e-skilling South African people for employment, starting their own business and improving service effectiveness;
- Effective e-Governance and service delivery;
- Business Development, including an improved capacity to establish new business opportunities in rural and peri-urban areas;
- Socio-economic development (socio-economic appropriation of ICT to increase national productivity and competitiveness);
- Evidence based policy development, monitoring, evaluation and research for theory advancement, informed practice and thought leadership required to improve South Africa's e-readiness, ICT use and ICT impact;
- Development of the citizenry as clients, customers, business developers, service deliverers, communities, social groups and families to build e-social astuteness for an active citizenry, an inclusive economy and a capable developmental state; and

[32] Osterwalder (2004) *The Business Model Ontology* - A proposition in a design science approach: a business model describes the value an organisation offers to various customers and portrays the capabilities and partners required for creating, marketing, and delivering this value and relationship capital with the goal of maximising impact and outcome.

- Leadership, specifically the development of an e-astute leadership throughout society to work together to solve problems and to be able to adequately represent South Africa across continental Africa.

… and is supported by the following ***Value Configuration***:

- New Policy Development focused on the NDP 2030 and MTSF 2009-14 goals;
- Research relevant to the NDP 2030 and MTSF 2009-14;
- A new collaborative network architecture to develop and deliver an integrated approach at the local level;
- Thought Leaders / Leadership Forums / Seminars / Conferences / Colloquiums / workshops to increase understanding of the e-skills agenda and its implementation and to obtain multi-stakeholders' buy-in;
- Develop and implement decentralised (regional) e-skills offerings; and
- Building e-astuteness and e-social astuteness to build a united approach to fighting poverty and inequality, develop an active citizenry that can meaningfully contribute to an inclusive economy, a capable developmental state, and growing leadership across society to bring people together to solve problems.

3.1.4.2 The Offerings: the Value Proposition

- Partnerships and collaborations better coordinated, invigorated and committed at the local level to build societal e-astuteness to better deliver impact on the goals of the NDP 2030 and MTSF 2009-14;
- Focused e-astute research and innovation to improve policy development, service delivery and conceptual clarity, which is the primary objective of the Research Network for e-Skills (ResNeS) and the research arm of the Provincial e-Skills Knowledge Production and Coordination CoLabs;
- A unique permutation of catalytic contributions that can build capability for national developmental needs such as increased self-reliance, strengthening local economic development and increased e-social astuteness for equity, prosperity and global competitiveness;
- Monitoring and evaluating of e-skills interventions;
- Continuous, timely response to changing market, government and societal needs for effective service delivery (e.g. more focused qualifications);
- Development of e-social astuteness for an effective navigation through the socio-economic fabric of the rapidly emerging socio-economic dynamic that is increasingly dominated by new forms of ICT; and
- National e-skills dialogue to commence addressing the underlying problems that have been responsible for South Africa's e-readiness dropping from 47th to 72nd from 2007 to 2012 and for South Africa being ranked at 91st out of 153 countries in the ITU's 2012 ICT Development Index (IDI).

3.1.4.3 Stakeholders Interest/Input

The e-SI Network Architecture Model is designed to allow the stakeholders to articulate their interest in and to actively participate in building an e-astute nation to achieve a more inclusive economy and a capable developmental state. This is enabled by a well-developed, soundly based and innovative approach that harnesses existing capacity through: (i) the target networks, (ii) network relationships and (iii) distribution channels.

Target networks

- Government, State Owned Companies, Private Sector, Education, Civil Society, Organised Labour, Donor Agencies, Policy bodies;
- Practitioners;

- Organisational users;
- Management;
- Research, monitoring and evaluation;
- Societal; and
- Local, national, continental and international.

Network relations

- e-SI as the central strategic coordinating point supported by advisory bodies as well as thought leaders across the multi-stakeholder linkages;
- Regional network CoLabs with specialist focus areas coordinating local and national offerings through content, planning and integration;
- Use of modern ICT converging technologies (e.g. social media) to support and drive coordination across the CoLab network and with all stakeholders.

Distribution channels

The main e-skills distribution channels are the e-Skills Institute and Provincial e-Skills Knowledge Production and Coordination CoLabs that are amplified by or through:

- Government, Business, Education, Civil Society channels and Organised Labour (virtual & face-to-face);
- Existing government agency delivery channels;
- Existing communication channels (e.g. mass media and personal media);
- Community channels;
- International networks.

3.1.4.4 Resources

For an optimal functioning of the e-SI Network Architecture Model appropriate and sustainable resource allocation, funding and revenue streams need to be established to allow the appropriate development of the network, its catalytic role and establishment of new interventions to address identified gaps.

The NeSPA 2013 recommendations for proliferating and accelerating multi-stakeholder participation are given in Table 7.

Table 7: The NeSPA 2013 recommendations for proliferating and accelerating multi-stakeholder participation

Recommendation NeSPA 2013 Actions
1. The **e-*Skills Institute*** will ***continue*** to be ***positioned*** as the ***national catalyst*** for e-skills development and the centre of the National Collaborative Network Architecture.
2. Inside the Government: • ***Harnessing collaboration*** with the Departments of Performance Monitoring and Evaluation, Higher Education and Training, Basic Education, Public Service and Administration, Rural Development and Land Reform, SALGA, National Treasury, National Planning Commission and the Human Resources Development Council, relevant State Owned Companies (including Telkom, USAASA, SAPO, SABC, ICASA) and Provincial Governments to meaningfully support the efforts of e-skilling the nation for equitable prosperity and global competitiveness. • ***Align relevant e-skills activities*** with the pertinent ***government departments at all levels*** (national, provincial and local) as well as the ***State Owned Companies by*** establishing a ***process of secondments*** to the ***programme activities of the e-Skills Institute*****.** This should be done in ways that will coordinate, integrate and aggregate efforts for e-skilling the country and building e-social astuteness across the full spectrum of

society.
3. ***Forge closer relationships with all stakeholders*** (KSPs) by ***delivering*** (and agreeing to) *a* ***mechanism for seamless and meaningful multi-stakeholder involvement*** in e-skilling activities at all levels (national, provincial and local).

3.1.5 Aggregation of e-skills effort across all stakeholders and at all levels

> *"The NDP 2030 is based on six (6) pillars that all reinforce the absolute need for building capabilities across the full spectrum of South African Society".*
>
> NDP 2030

"Mega data" based marketing is now becoming commonplace and all serious efforts to address the mega issues facing societal equity and scientific growth are recognised as requiring large scale cross-discipline, cross-stakeholder (KSPs) and long term approaches. The e-Skills Institute has found[33] that there is a need for an aggregated research framework to support innovation and to organise its service delivery and knowledge creation for an emerging socio-economic developmental platform dominated by new forms of ICT. It is also concluded that there is currently no coordinated, integrated and cross-disciplinary approach to enable impact and evidence based policy development, research and evaluation for matters pertaining to e-skilling South Africa. This gap means that serious multi-disciplinary and multi-stakeholder policy development; research and evaluation efforts for assessing praxis, policy development and innovation are not encouraged, rewarded or funded.

In reality there is little alternative than to focus on the big socio-economic issues in a collaborative manner across Government, Education, Business, Organised Labour and Civil Society, with intended beneficiaries. The investigative visitations to a number of countries since 2011 have indicated that the current effort in these countries revolves around bringing together previous areas of independent specialisation into new structures, programmes and evaluation processes. This is a common approach by the executive leaders and programme managers in the Government, Business and University organisations visited. Often this required organisational re-focussing or restructuring for more effective ways of research and learning for impact-driven service delivery. It was evident that most of the government service delivery, education and research organisations visited since 2011 now operate in a new form of matrix management where there is formal long term interaction across sections, departments and organisations around developing new value aligned to the Knowledge Society.

The aggregation model developed by the e-SI is based on the aggregation of resources across all relevant stakeholder groups into clearly defined "national need" programmes for policy development, proof of concept, delivery, monitoring and evaluation for impact. This model should now be further advanced by secondments from across relevant Government Departments, State Owned Enterprises, Business, Education, Civil Society and global development partners. This National e-Skills Plan of Action (2013) also recognises that time is of the essence and that immediate action is required to position nations with the relevant skills for an accelerated socio-economic and employment sustainability in the next 10 to 15 years. The cost of not doing so in South Africa when both collaborator and competitor countries are adopting such approaches will be very difficult to determine.

The recommended NeSPA 2013 actions regarding the aggregation of e-skills effort across all stakeholders are given in Table 8.

[33] e-Skills Institute (2012), *Towards the establishment of an approach for aggregation of e-skills effort across South Africa*, e-SI, Pretoria.

Table 8: The NeSPA 2013 recommendations for the aggregation of e-skills effort across all stakeholders

NeSPA 2013 Recommended Actions
1. The ***e-SI*** and ***ResNeS should adopt*** a ***project based approach*** to ***support the development of a National Central Aggregation Framework*** to inter alia assess the impact of e-skills policy development, proof of concept and related research, monitoring and evaluation**.**
2. ***Complete*** the ***audit of e-Skills activities*** across the Portfolio of Departments and the State Owned Companies and involve the National Treasury, Department of Monitoring and Evaluation and the Department of Planning in this process in order to enhance collaborative performance against the national priorities stipulated in MTSF and NDP.
3. Interact ***with relevant*** government departments ***(all levels) and State Owned Companies regarding***: • Better alignment of relevant e-skills activities with the e-Skills Institute; • Establishing a process of resource allocations and secondments to the programme activities of the e-Skills Institute in ways that will coordinate, integrate and aggregate efforts for e-skilling the country and building e-social astuteness across the full spectrum of society.
4. Together with the Department of Higher Education and Training (DHET) and the Department of Public Service and Administration ***establish*** the ***model of aggregating*** and ***integrating pedagogy*** and ***innovation*** aligned to the needs of the developing Knowledge Society.
5. Together with various stakeholders, ***create*** a plan and ***mechanism for*** the ***aggregation*** of resources, effort and assessment of the multi-stakeholders' e-skills initiatives and, in such a way, for achieving ***optimal socio-economic impact*****.**

3.1.6 Strengthening and Further Development of ResNeS

As mentioned in Section 4.3 above, in depth evaluations of approaches in a number of countries and noting the emerging recognition of e-skills efforts in the European Union (including SFIA, e-Skills UK, INSEAD), there is a high need to build a relevant research base to support innovation, policy development, impact measurement, and relevant development of academia in this emerging space. What is clear, it is that there is a growing recognition that such an effort requires new approaches outside of existing vehicles. It is simply self-evident that whatever has been established and achieved in the past has been insufficient to predict, prevent and respond to the needs of the current situation and that no amount of readjustment in these systems can provide the necessary leadership, scholarship and relevant responsiveness required. The socio-economic and multi-disciplinary *focus* ***requires a new platform that valorises stakeholder collaboration, e-astuteness, e-social astuteness across society, changing value propositions for business, government and education, systems aggregation, social appropriation and impact assessment***.

NeSPA 2013 recommends that ResNeS be strengthened to adopt combined approaches of NICTA[34] and the Australian Cooperative Research Centres[35]. ResNeS should be supported by the allocation of 12 new professorial chairs under the South African Research Chairs Initiative (SARChI)[36] with the modified application requirements that recognise the circumstances and needs related to the establishment of new research collaborative disciplines. Further, NeSPA 2013 recommends that an adequate research budget be allocated to this new vehicle for competitive funding aligned to the needs of establishing a sound research and teaching platform based on evidence based policy and praxis. NeSPA 2013 also recommends that South Africa establish an e-skills sabbaticals programme for national, continental and international representatives from academia, business, NGO, government, civil society and organised labour to share their expertise to build local capacity and to

[34] www.nicta.com.au
[35] www.crc.gov.au
[36] www.hicd.nrf.ac.za

gain a better understanding of the South African Knowledge Society environment. There is also great advantage for reciprocal postgraduate, undergraduate and school learner short term exchanges with relevant countries that understand the developmental agenda. Thus NeSPA 2013 recommends that a programme to support 250 high school learners, 100 undergraduates and 50 postgraduates on international exchange programmes be immediately established. The establishment of this programme should seek to involve and focus existing international exchange programmes through high level engagement with relevant High Commissioners and Ambassadors based in South Africa and South African diplomats based abroad.

Table 9: The NeSPA 2013 recommendations for strengthening ReSNeS

NeSPA 2013 Recommended Actions
1. ResNeS to facilitate the ***establishment of*** *a* ***new platform*** that valorises stakeholder collaboration, e-astuteness and e-social astuteness across society, changing value propositions for business, government and education, systems aggregation, social appropriation and impact assessment.
2. ResNeS to develop ***a new vehicle based*** on an ***adaptation*** of the ***combined approaches*** of ***NICTA*** and the ***Australian Cooperative Research Centres*****.** This should be supported by the allocation of ***12 new e-Skills chairs*** under the South African Research Chairs Initiative (SARChI).
3. ***Establish an adequate research budget*** allocated to this new vehicle for competitive funding aligned to the needs of establishing a sound research and teaching platform based on evidence based policy and praxis.
4. ***Establish*** *an* ***e-skills sabbaticals programme*** for national, continental and international representatives from academia, business, NGO, government, civil society and organised labour.
5. ***Immediately establish an international programme*** to support 250 high school learners, 100 undergraduates and 50 postgraduates.

3.2 New Dynamics and New Interventions

Since the inception of NeSPA 2010 the South African e-skills agenda has been driven by urgency to respond to the national needs and by innovative planning and new thinking. A number of milestones set in NeSPA 2010 were achieved and important lessons are learned and continuing to be learnt. Valuable experience also came from a number of visited countries and "best practice" learned from several developing countries that have taken on the challenge and are moving ahead to e-readiness and e-skills. In summary, it is evident that tackling **South Africa's** burning **issues** of **unemployment**, the current levels of **poverty** and **inequality** cannot be effective **without focus** on:

- ***affordable internet*** and its ***increased uptake***,
- ***opportunities*** related to increased ***mobile penetration*** and ***convergence***,
- ***increased need for skills*** of all kinds but particularly
    - ***aggregated supply*** and ***demand*** of e-skills coupled with its "soft" components of attitude and social astuteness (e-social astuteness) and
    - ***application*** of these ***skills*** to ***social innovation*** and ***entrepreneurship***.

The new e-skills dynamics and interventions are inevitably related to the affordability of the Internet enabled by new international cables that are already connected and those planned to be connected in the immediate future in the country (see Figure 5). This should lead to lower prices and opportunities for much higher uptake of the technology by deep rural, rural and peri-urban areas in South Africa. It is envisaged by policy-makers that all of Africa's major cities, towns and villages will be connected to affordable broadband Internet by 2020, thus providing the opportunity for the

continent's mass entry into the emerging world where the socio-economic platform will be increasingly dominated by new forms of ICT, i.e. the Knowledge Society.

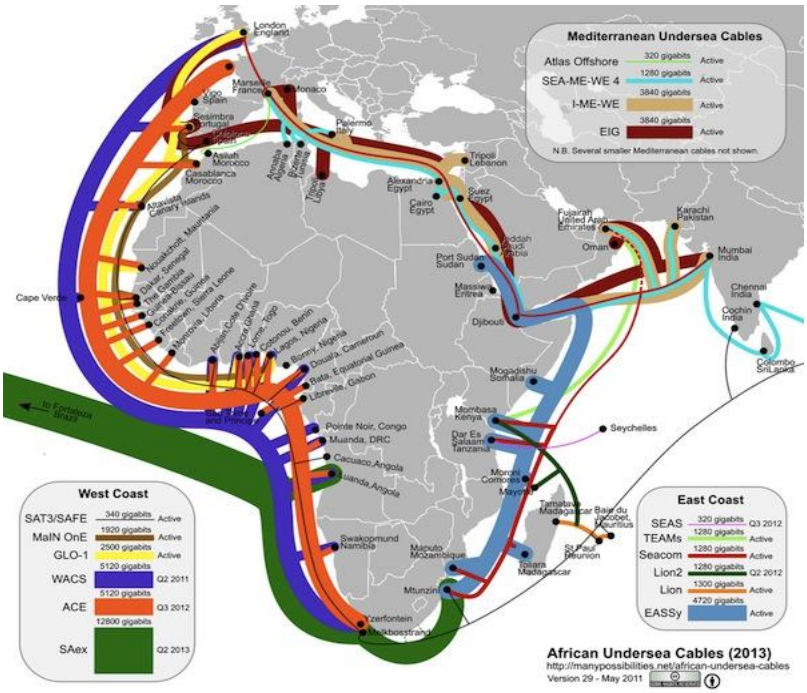


Figure 5: African undersea cables 2013[37]

Mobile (cell phone) penetration in South Africa and on the continent provides an unprecedented opportunity in the mobile software applications development industry, thus generating new job opportunities and developing solutions for Africans by Africans. "*The ability of mobile technology to solve major social problems in Africa is unprecedented*", was highlighted by Communications Minister Dina Pule at the Second e-Skills Summit 2012 and Global ICT Forum on Human Capacity Development. She added "*From health to education, mobile technology is changing the way all sectors of society do business*".

This also brings a clear focus on the new needs for e-skilling and capacitating users but also on the instruments for doing so. Technological convergence is now occurring at more levels (multi-media, internet, mobility and connectivity) and this has impacts on the instruments to e-skilling. The skills needed in South Africa, including e-skills, have become even a greater and more urgent matter as the issue of unemployment, especially for youth, continues to grow despite the national efforts. The country now must respond to the challenges and opportunities related to new technology with new approaches. These new approaches must recognise the new forms of developing a creative economy, innovation, entrepreneurship as well as the social and cultural aspects in dealing with inequity and prosperity and building a more self-reliant and resilient socio-economic base. Social astuteness has become an important matter in the appropriation of ICT especially in terms of increasing self-reliance and ability to successfully navigate through the socio-economic fabric utilising e-skills (e-social astuteness).

The current trends regarding the impact of an effective deployment of ICT at international, national and local levels demonstrate that the aggregation of both supply and demand into increasingly large economies of scale is well beyond the capacity of traditional concepts of market competition within nation states wishing to operate in the national interest. Conversely, in an emerging world Knowledge Society, only a national approach built on effective collaboration across various stake-holder groups (multi-stakeholder approach) and the aggregation and integration of:

[37] Source: http://mybroadband.co.za/news/wp-content/uploads/2011/07/Africa_undersea_cables_projection_2013.jpg

- ***efforts*** for an ***integrated service delivery***,
- ***resources*** for ***optimal efficiency***,
- ***strategies*** and ***policies***, for a systemic implementation of the e-skills agenda
- ***data*** for analysis of 'Big Data' in the context of Case Study analysis to support evidence-based policy-making and
- ***monitoring*** and ***evaluation***…

… has the potential to address the immediate and future needs of South Africa.

Understanding the international trends and the present and future national needs, new e-skills dynamics and interventions will be addressed through:

- Linking the e-skills agenda to the National Development Plan and helping in creating an e-literate and an e-socially astute society by 2030;
- Strengthening the e-Skills Institute's Value Proposition;
- Establishing an e-skills integration framework to deliver impact against national goals;
- Establishing an e-Readiness Fund to channel resources to deliver against national goals for impact;
- Adequately describing and then developing an e-Skills Ecosystem;
- Building a contextual e-Skills Framework and Taxonomy;
- Establishing an e-content development mechanism;
- Strengthening organisational transformation and resource capacity of the e-SI (namely the merger of e-SI, NEMISA, ISSA);
- Reposition e-Centres as Smart Community Knowledge Centres in urban, peri-urban, rural and deep-rural communities;
- Developing and facilitating a National e-Skills Curriculum and Competency Framework.

3.2.1 Linking the e-skills agenda to the National Development Plan 2012 (e-literate society by 2030)

In accordance with the principal of supporting national and international developmental strategies and programmes, stipulated in NeSPA 2010 and adopted by NeSPA 2013, this e-Skills Plan of Action **recommends** the following **actions** (Table 10) that should be further developed and executed by the e-Skills Institute and the Knowledge Production and Coordination CoLabs.

Table 10: The NeSPA 2013 recommendations support to NDP Priority Areas

NDP Priority Area	NeSPA 2013 Recommended Actions
An economy that will create more jobs - the NDP proposes to create 11 million jobs by 2030	• ***Developing citizens' e-skills for sustainable employment***, innovation, creativity, participation and inclusive economic growth; • e-***Skilling SMMEs for more effective business and increasing competitiveness***; • ***Developing e-skills*** necessary ***for increasing capacity for exports and global competitiveness***; • ***Providing e-skills*** for ***strengthening government's capacity to provide direct leadership to economic development***; • ***Including in the e-SI awareness and advocacy campaigns*** the actions that will ***support mobilising all sectors of society around a national vision*** for building capacities relevant to an enabled socio-economy – e-social astuteness.

Improving infrastructure	***Providing*** planners, ***managers*** and ***workers*** with the ***e-skills*** necessary ***for the effective use of ICT*** for ***building*** and ***maintaining appropriate infrastructures*** to improve informal settlements, public transport, mining, water schemes or renewable electricity infrastructure.
Transition to low-carbon economy	***e-Skilling ICT professionals, industry*** and ***public organisations' leaders, managers*** and the ***workforce*** as well as ***citizens*** *for* ***sustainable development*** (sustainability e-skills and e-competences).
An inclusive and integrated rural economy	***e-Skilling the rural population*** *and the* ***providers of public services*** for ***effective use of ICT*** and ***e-services*** in areas of education, healthcare, transport and other basic services.
Reversing the spatial effect of apartheid	***e-Skilling the population*** in ***townships*** to ***overcome the tyranny of distance*** and for ***employment*** or ***small business readiness*** as well as giving them ***e-skills for Digital Inclusion*** and ***Social Innovation***.
Improving the quality of education, training and innovation	• ***Providing*** *e****ducators*** *and* ***learners*** *with* ***e-skills for all levels of education***: early childhood development (ECD), primary and secondary schools, FET, higher education. • ***e-Skilling in the context of the changing face of delivering high quality education and training***, which is necessary for local innovation to help shift to a more e-enabled and connected economy, in order to develop a wider system of innovation consistent with national socio-economic priorities.
Quality health care for all	***Designing*** *and* ***providing e-Health skills*** necessary for improved health management and accountability, better trained health professionals, better patient information systems that support a more decentralised and home-based care model and support to maternal and infant care. ***Developing a social e-astuteness and e-social astuteness at the societal level*** to increase the efficacy of e-health delivery at the community level.
Social protection	**1.** ***Building e-social astuteness at the community level*** to more appropriately enable individuals and communities to socially appropriate digital capacity in the development of more cohesive and safe communities. **2.** ***e-Skilling youth*** and ***women*** for ***specific public employment*** *and* ***the adoption of modern ICT enabled delivery and response mechanisms***. **3.** **e-*Skilling public service providers*** for ***expanded social welfare services*** and the ***integration*** of a number of ***databases*** in the ***social security environment***. Social audits of government services are needed for better and more effective social and employment programmes by government.
Building safer communities	***e-Skilling officials*** *and* ***citizens*** *for an* ***effective use of ICT for the development, delivery and response of community safety programmes*** using an integrated approach and community participation in community safety.

Reforming the public services by professionalising them	***Developing and accrediting appropriate e-astuteness and social astuteness amongst public servants*** necessary for the effective delivery of **e-Government** and e-**Governance**.
Fighting corruption	**Developing e-skills** aimed at **greater transparency**: ***e-Governance*** and ***e-Participation*** and providing adequate and safe e-response mechanisms to report corruption.
Transforming society and uniting the country	***Developing*** **a** coordinated, integrated national ***programme of e-skills across all stakeholder groups for Digital*** (and Social) ***Inclusion*** and ***ICT-supported social cohesion***.

The National Development Plan proposes that by 2030, the economy should be close to full employment. This can be achieved by inter alia providing the resources for investment in human and physical capital and equipping the South African people with the skills they need to operate in a mixed economy that will increasingly be dominated by new forms of ICT. One of the first steps is to e-skill the growing numbers of young unskilled and low-skilled population, while upgrading the skills and knowledge of its citizens - enabling them to fully participate in the emerging socio-economic platform and achieve more equitable life chances. To achieve the successful implementation of these noble plans requires the development of different levels of e-skills (e-social astuteness) across the full spectrum of stakeholders. This requires a collaborative network architecture model and the aggregation of all available resources and actions as recommended by this National e-Skills Plan of Action. Particular focus should be placed on improving the skills base through better education and vocational training, as detailed in the e-SI document "*Towards a National Curriculum and Competency Framework and Standardised Curriculum Guidelines*".

3.2.2 Strengthening the e-Skills Institute's Value Proposition

The e-SI Value Proposition[38] provides a context for a government ecosystem to develop e-social astuteness to make effective use of ICT for more equitable life opportunities across the full spectrum of society. It recognises that in democracies and in most centrally managed societies, no amount of ***provision*** (doing to), or ***support*** (doing for) can succeed without a ***social, cultural*** and ***economic*** **contract** (doing with)[39]. This contract must be based on trust and reciprocity between government and the people, which is particularly important in developmental states where there are large inequities in living standards and opportunities. At the centre of this contract lies individual and collective capability to maximise current circumstances in ways that are responsive to both current and future individual and collective needs.

The e-SI Value Proposition also recognises the inability of incremental appropriation of ICT to address complex issues of inequality, joblessness and poverty. Instead, disruptive interventions that make best use of the new ubiquitous devices and that are fundamentally "life changing" are recommended. The experience from the last decade shows that the over-emphasis on technological capability, reductionist research and treating ICT as a mere tool has placed South Africa on a downward trajectory of "e-readiness"[40]. Thus, it is recommended that complex and critical matters of inequality, unemployment and poverty require a new national approach beyond current processes. It is recommended that South Africa should harness the technology in ways that valorises South Africa's culture, independence, social identity, socio-economic prosperity, innovation, creativity, employment opportunities, global competitiveness and continental position. For this, a sound approach to the social appropriation of ICT for local benefit is needed.

[38] E-Skills Institute Value Proposition is given in its full form in Appendix B.
[39] See Attachment I in Appendix B.
[40] See Appendix B: Attachment II for summary of South Africa's position; references - the WEF Global Information Technology Report 2011-2012. Dutta (INSEAD) and Mia (WEF); The Digital Inclusion Index, MapleCroft, UK, 2011.

Such an approach emphasises development of social capacity and social astuteness to make use of ICT by South Africans in ways that suit their personal circumstances (e-astuteness) and their local communities' needs (e-social astuteness). E-skilling the nation, recommended through this National Plan of Action, will be situated within a context of developing a better understanding of ICT appropriation that will lead to increased socially cohesive approaches to self-reliance. This must happen through: (i) a formal multi-stakeholder aggregation and collaboration process, (ii) coordinated effort, and (iii) developing knowledge, aptitude and astuteness at the local level. As emphasised in the e-SI Value Proposition, such a process requires "*a mirror policy development function at the national level which can harness the best talent across business, government, education, civil society and organised labour from within and outside of the country*".

In a nutshell, the e-SI Value Proposition is based on the following set of key issues:

- The e-SI provides linkages to new networks across a multi-stakeholders base (Business, Government, Education, Civil Society and Organised Labour) within a "government recognised" and "business credible" integrated framework that is responsive to new deployment and delivery approaches. This network allows for a formal process of more effective engagement between government and other stakeholders;
- The Value Proposition offers a collective base for developing appropriate methodologies, training, products and services applicable to a range of markets in the developing countries, particularly those that are implementing (or wish to implement) the developmental state approach;
- This multi-stakeholders platform, on which the Value Proposition is based, allows for better assessment of gaps, overlaps and opportunities both for existing and future e-skills endeavours.

To strengthen the e-SI Value Proposition the following NeSPA 2013 actions are recommended (Table 11).

Table 11: The NeSPA 2013 recommendations for strengthening the e-SI Value Proposition

NeSPA 2013 Recommended Actions
1. Further ***strengthen the e-SI approach to e-skilling*** the nation for equitable prosperity and global competitiveness by: • Continuing with promotion and development of the human resource e-skills base in South Africa; • ***Ensuring*** that ***e-SI National Curriculum and Competency Framework*** (NCCF) ***responds to new market needs and demands*** in a coordinated environment with higher education institutions; • ***Capacitate and resource policy development, monitoring and evaluation and research efforts*** to ***provide a focus for continuous evidence based action*** in a cross-disciplinary manner that will explore new ways of embedding ICT into people's lives to improve business opportunities, access to government services and facilitate improved social cohesion; • ***Continuing with and strengthening a proactive approach to environmental scanning*** in a rapidly changing landscape through its national platform that can more adequately assess gaps, overlaps and opportunities for collaborative approaches.
2. Further ***positioning of the e-Skills distributed network*** of the ***Knowledge Production and Coordination CoLabs*** through**:** • A positive engagement with multi-stakeholder groups (nationally, provincially and locally) represented by both leaders and project managers across Government, Business, Education, Civil Society and Organised Labour; • Links to university networks within South Africa and worldwide that can help evaluate case study approaches, provide postgraduate research capacity and internships; • Increase the size of the national and international opportunity within a "Government recognised", "business credible" and integrated framework that is responsive to new deployment and delivery approaches;

- Maintain a collective energy for developing appropriate methodologies applicable to a range of markets in developmental states, whilst also providing a base for a collaborative approach towards these markets;
- Enhance useful networks across Government, Busyness, Education, Civil Society, Organised Labour and Global Partners related to pedagogy, research, innovation, policy development in a cross-disciplinary area that has been highlighted by all evaluations of limits to growth, sustainability, equity, global competitiveness.

3. Further ***positioning*** of the ***e-SI's National Research Network for e-Skills*** (ResNeS) by:

- Providing an environment for a multi-disciplinary policy and research base for the e-Skills initiative, which goes to the heart of building South Africa's capacity for equitable prosperity and global competitiveness;
- Commencing the process of building a relevant taxonomy, providing a coordinating framework, proactively aligning research to national priorities, business needs, and emerging technology capabilities and establishing a sound credible and active research collaboration body;
- Undertaking the important matter of aggregating relevant existing data and in establishing a process for on-going data collection that is more closely aligned to the needs of a broad based national approach to capacity building for South Africa's developmental needs in the Knowledge Society;
- Informing and influencing e-capacity building policies, grounded on evidence based research, and identifying South Africa's needs within its own cultural identity;
- Assessing existing research approaches in order to recommend the most suitable methods for e-Skills research in South Africa and developing countries.

4. ***Providing opportunities for building South Africa's e-Skills capacity*** by:

- Refining policy settings within a more integrated and innovative approach to the subject matter;
- Testing new approaches to service delivery within a safe environment that has broad technical, praxis and policy support across business, service delivery agencies, education and the local community;
- Developing and testing new products and services in protected environments in the e-Skills Knowledge Production and Coordination CoLabs;
- Accessing academic case study approaches with university researchers and students (undergraduate and postgraduate), government managers and programmes, and business-related knowledge and experience;
- Establishing new pedagogical and research approaches to undergraduate courses, short courses, postgraduate courses and evidence based research, aligned to current needs and future trends;
- Developing a formal process to more effectively engage with government from a collective stakeholder stance around praxis, evaluation, policy development, research needs, and new approaches to vertically and horizontally integrated efforts to national skills development for the Knowledge Society.

5. ***Support e-SI Stakeholder Value Proposition*** in accordance with the stakeholders' specific needs.

3.2.3 Establishing e-Skills Integration for Impact

> "*By social impacts we mean the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally cope as members of society. The term also includes cultural*

impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society."[41]

Developing a sound approach to the impact-driven social appropriation of ICT for local benefits must be done in ways that valorise South Africa's culture, independence, social identity, socio-economic prosperity, innovation, creativity, employment opportunities, global competitiveness and continental position.

It is a common agreement of all e-skills stakeholders in South Africa that such an approach to complex problems of inequality, poverty and joblessness cannot be successful if done in isolation ("in-silo" approach) but requires the establishment of a formal multi-stakeholder aggregation and collaboration. That process will coordinate e-skilling endeavours, including development of knowledge, aptitude and astuteness, which are necessary for achieving an integrated impact on socio-economic development. The aim of the aggregation and collaboration processes is to deliver socio-economic and cultural appropriation of ICT for innovative job creation, community cohesion and participative approaches to service delivery.

This approach has the potential to overcome the barriers of an "in-silo" operational attitude and embedded hierarchies within all spheres of within and across government, education and business. It has a capacity to deliver an integrated approach and be more responsive to global changes identified by The Presidency's Department of Performance Monitoring and Evaluation and highlighted as key issues in the National Development Plan 2030. This joint approach across stakeholder groups is required for effective evidence-based policy development which should be mirrored at all levels of the multi-stakeholders partnership. This is needed to provide the necessary leadership for line Departments (National, Provincial and Local), State Owned Enterprises, Tertiary Education and Training, Industry, Business, Donor Bodies/Countries and International Development Agencies. Such an effort is essential to harness the best talent across business, government, education, civil society and organised labour from within and outside of the country to develop, implement and evaluate coordinated policies to ensure that the adoption of ICT does not cause increased inequality.

The integrated approach outlined in this section provides the basis to provide the integration and aggregation frameworks for impacting the national strategic goals (including the MTSF, NDP and HRDC) through the socio-economic and cultural appropriation of ICT. The e-Skills Integration for Impact framework (Figure 6) not only aligns stakeholder needs but ensures the inclusion of fundamental e-skills concepts such as e-social astuteness, innovation, creativity, transition requirements for moving to a socio-economic platform increasingly dominated by new forms of ICT (the Knowledge Society) and building an environment for new jobs. It also entails an aggregation framework for monitoring and evaluation.

[41] Interorganisational Committee on Guidelines and Principles for Social Impact Assessment (2003) *Principles and guidelines for social impact assessment in the USA, Impact Assessment and Project Appraisal*, 2003, 21(3): 231–250.

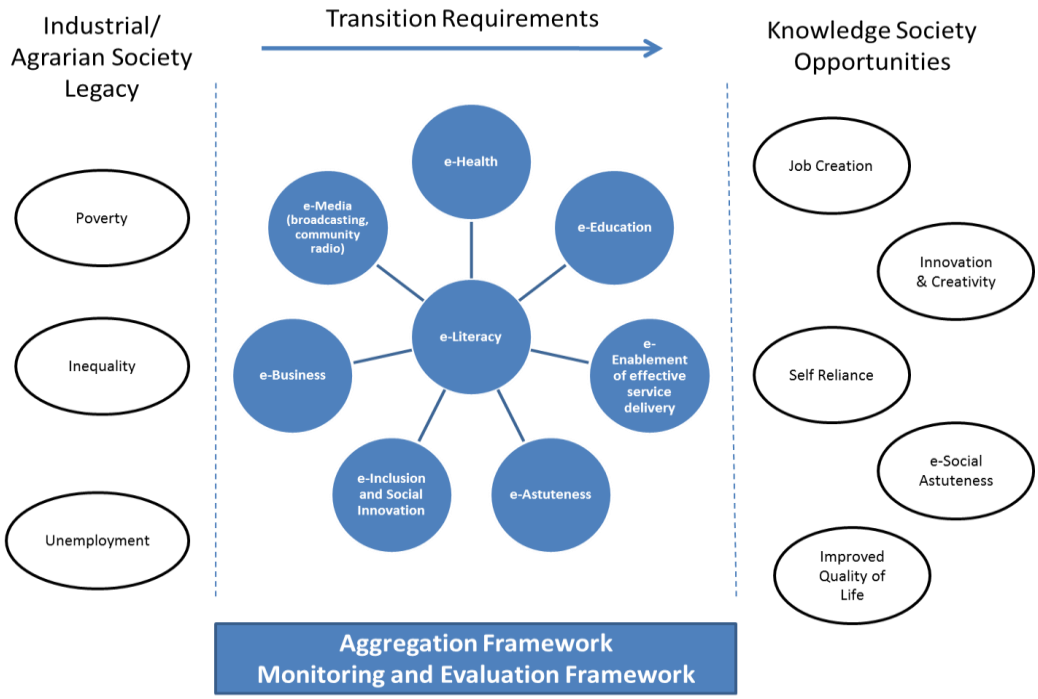


Figure 6: e-Skills Integration for Impact Framework

3.2.3.1 Transition requirements for moving to Knowledge Society

There is a common understanding and agreement among the many e-skills stakeholders consulted and engaged since 2008, that South African society must embark on a speedy transition from the industrial/agrarian society and its **legacy** of widespread ***poverty***, ***inequality*** and ***unemployment*** to fully realise ***opportunities*** offered by the emerging Knowledge Society. This necessitates **job creation** through ***innovation*** and ***creativity***, social astuteness[42], here applied as ***e-social astuteness***, ***self-reliance*** and ***improved quality of life***. In order to do so, the nation must acquire basic e-skills (here called e-Literacy[43]) needed for the socio-economic appropriation of the modern information and communication technologies. These are indispensable for digital inclusion (**e-Inclusion**) and **social innovation**, electronically conducted business (***e-Business***), effectively using electronic media (***e-Media***), ICT-supported health systems and applications (**e-Health**), e-Learning and the use of ICT in education (***e-Education***), e-government/governance and e-participation for an effective service delivery (***e-Enablement***) and an astute use of skills for personal growth and self-reliance (***e-Astuteness***).

The concept of e-astuteness is closely related to developing e-competent individuals by giving them appropriate ICT-related knowledge and skills and training them to develop a competent attitude and knowledge to use and adapt to the rapidly changing new forms of ICT devices and associated software. If applied to benefit the community's socio-economic context (and possibly combined with other "e-astute" community members), e-astuteness then transitions into ***e-social astuteness***, i.e. it becomes a smart way to apply acquired e-skills for everyday socio-economic development and better life opportunities for all. If applied appropriately, e-social astuteness can further help in developing ICT-supported social cohesion (impacting on basic issues including health, safety, food security, youth unemployment, increasing self-reliance, education and training, business development, etc.) which is very high on the agenda of the NDP and MTSF.

[42] We here use the term ***astuteness*** in a ***positive connotation***: using individual shrewdness for personal advancement by not taking unfair advantage of other people or the community.
[43] Detailed explanation of different e-skills is given in section 5.2.6 Building an e-Skills Framework and Taxonomy

3.2.3.2 e-Social Astuteness

As one of the key concepts supported at the 2nd e-Skills Summit, the benefits of appropriately developed e-social astuteness needs to be elaborated in more detail as the primary issue is related to how people without much formal education can make best use of their e-skills to become self-reliant in maintaining proficiency with the ever changing technology to deal with their real life issues at the local community level. The concept of e-social astuteness was strongly endorsed by delegates at the Summit and the ITU Global ICT Forum for Human Capacity Development (Cape Town, October 2012). This concept was considered by the delegates as an integral part of e-skills development, which was also echoed in the recent speech of the Minister of Communications at the Innovation Africa Summit and that of the Deputy Minister of Communications in the Opening Address at the 2nd e-Skills Summit.

Figure 7: e-Social Astuteness Wheel (Source: Sharif, 2012[44])

The development of e-social astuteness helps in recognising opportunities in an ICT-enabled world by all people regardless of their formal education, employment status, location, age, gender or physical disablements. Thus, the aim is to make them capable e-users in the same way that children seem to be able to develop 'an intuition' in how to interact with all emerging technological devices without formal education - a concept of 'child driven education' as espoused by Sugata Mitra[45]. As this is fundamental to the success of new ICT-enabled approaches to service delivery, it is in the best interest of government, business and education to resource its human capacity base by helping them to become e-socially astute workers and citizens.

3.2.3.3 Aggregation Framework, Monitoring and Evaluation

The Knowledge Society offers an improved quality of life through a spread of opportunities: from job creation and self-reliance to innovation, creativity and social astuteness. However, to facilitate the move from Industrial or Agrarian Society legacies towards Knowledge Society opportunities, coordination and collaboration of effort across all of the key stakeholder groups are fundamental. Hence, this framework for aggregated impact focuses efforts on key areas (Figure 7) that are aligned to the national priorities outlined in MTSF and NDP. This aggregation will be achieved through the established, decentralised collaboration network architecture (including provincial e-skills

[44] e-Skills eco-wheel, Sharif, M. (2012) *Report on the e-skills multi-international exchange programme to Australia and New Zealand*, 2 – 17 November 2012

[45] See for example http://www.ted.com/speakers/sugata_mitra.html

knowledge production and coordination CoLabs) that allows for channelled outputs, outcomes and impact at local, provincial and national levels. The aggregation framework for e-skills impact (currently being developed and implemented) will address three main issues: (i) ***aggregation of efforts*** (collaborative approach through the e-skills collaborative networks), (ii) ***aggregation of resources*** (e.g. funding for impact), and (iii) ***aggregation of results*** and ***information***, which are necessary for an informed strategy and policy decision-making. This framework is also expected to address the drivers for the realisation of the goals of the e-skills agenda. Such drivers are including an improved ICT connectivity and the lowering of broadband costs, focused funding, thought leadership and sustainability. The geo-spatial scope, ensuring that peri-urban, rural and deep rural areas are catered for, is of utmost significance in an effort to use e-skills for increased opportunities in the socio-economic platform dominated by new forms of ICTs[46].

The ***monitoring*** and ***evaluation*** model that will support the development of the e-Skills Integration for Impact Framework is planned to include socio-economic parameters that can directly and indirectly align effort to the highest national socio-economic priorities outlined in the MTSF and NDP. Therefore, the monitoring and evaluation should include:

- ***Digital*** and ***Social inclusion***: the capability of all citizens to use ICT in order to play a full part in society and enjoy a fair share of wealth and opportunity (equitable development). This effort includes accessibility to digital resources and the capacity to apply this capacity to address individual, community and social needs through e-astuteness and e-social astuteness.
- ***Effective delivery of government services***: the degree to which citizens are capable of accessing and appropriating e-government and e-governance services (e-Enablement of effective service delivery). This also encompasses the use of mobile devices for utilising government services at all levels (m-government).
- ***Expansion*** and ***modernisation*** of **ICT facilities**: assessing the success in transforming e-Centres into Smart Centres for more learning and training opportunities, access to services for work, cultural and social opportunities.
- ***Building*** the ***capacity*** of ***individuals***, ***groups*** and ***communities***: monitoring and evaluating progress of empowering the inherent and developed capabilities of citizens. This includes capabilities to use e-skills, e-astuteness and e-social astuteness to make decisions regarding matters of individual, economic and societal development. This also includes assessing the skills necessary to find employment or start and manage their own business, thereby the creation of jobs and tackling poverty.
- ***Re-skilling*** and ***up-skilling*****:** monitoring and evaluating the gaps in e-skills delivery in order to advise evidence based policy making and also in the creation of e-skills programmes that will close these gaps. In part this will encompass regular e-skills environmental scanning.
- ***Supporting Social Capital*** and ***Social Cohesion***: assessing the use of ICT and e-skills for connecting people and helping them to maintain and strengthen social ties between family members, friends and communities; assessing the appropriation of e-skills for participation (e.g. e-Participation and e-Democracy) which has an important contribution to make in the evaluation of the readiness of individuals and communities to cohesively support the national, provincial and local development agendas.

Table 12: The NeSPA 2013 recommendations to integrate e-Skills in an Impact Framework

NeSPA 2013 Recommended Actions
1. *Fully develop*, *test* and ***implement*** an ***e-Skills Aggregation for Impact Framework*.**

[46] The possible structure for the e-skills aggregation framework is given in Appendix D.

2. The ***universities*** (particularly those which have signed the MoUs with e-SI), as places intended for thought leadership, ***need to be co-opted*** into ***establishing independent knowledge creation approaches*** for the ***collaborative efforts*** described in this ***e-Skills Integration for Impact Framework.*** These knowledge creation spaces can be ***harnessed*** inter alia to support the development of this ***Framework*** and its ***implementation*** - hence ***helping development*** of the South African ***Knowledge Society*** in ways that will ***ensure a more equitable prosperity*** for its **citizens** and an improved ***global competitiveness*** of its ***economy***.

3.2.4 Establishing an e-Readiness Fund for Impact

In its efforts since 2008, the e-Skills Institute has found a high level of willingness by IT related business (South African and International) and international development agencies to become engaged with a national e-skilling effort. They understand the need and want to see it advanced rapidly not only because of self-interest but also because most have a genuine desire to help improve the human condition through the social appropriation of ICT.

However, the common issues raised by business relate to visible and committed government support, speed of response, evidence of a sound responsive plan that recognises the reality of the situation and valorises stakeholder interests.

Experience with business support for well-developed approaches that deal with 'real societal' issues in meaningful practical and implementable ways is evidenced by initiatives such as NEPAD and projects emanating from the Davos events. Further there are many donor countries including South Korea, Finland, Sweden, Belgium, UK, USA, Canada that have established individual programmes of up to five (5) years in South Africa in the 'Information Society' space. Whilst these have been well intentioned and have often been clearly focussed, all efforts seem to meet a slow or quick decline once the money stops.

What is missing in this obvious interest to assist South Africa's poor in the appropriation of ICT for local benefit and in overcoming poverty and inequality is a single point of entry and coordination of effort over the longer term.

Following on an initial investment made by the DoC in collaboration with the key organisations such as Telkom, UNDP or Cisco, this NeSPA 2013 recommends the establishment of an e-readiness flagship programme and fund accounted through the e-SI and administered in an open manner based on the recommendations and oversight of an independent Advisory Board consisting of people with high levels of financial management and a deep understanding of the real issues of socio-economic and e-skills development.

3.2.5 Building an e-Skills Framework and Taxonomy

Current experience is demonstrating that the matter of developing e-skills for socio-economic development for a more equitable prosperity and global competitiveness is a complex matter. It requires a much better understanding of mixed economies, new value propositions, the bidirectional nature of benefit/loss and preferential intent of disadvantage enabled by increased broadband access.

Currently, there is a vibrant interest in the matter of e-skilling across both developed and developing economies. Nations are quickly recognising that a comprehensive approach to e-skilling involving much more than an incremental approach within a business model is required. The rapid advance of social media and its impact in the socio-economic fabric of all societies were not predicted and took some time to be fully recognised as a legitimate part of the socio-economic landscape. In this environment the old style and familiar taxonomies, feedback loops, response times, economies of scale and impacts are now being tested in unexpected ways.

New taxonomies that more accurately describe and understand the new dynamics need to be developed. In this mix, new approaches to teaching, learning and training are being developed and deployed in very short time frames; witness the emergence of MOOCs (Massive Open Online Courses).

There is a very high need for nations with developmental agendas to ensure that they don't become unwitting losers in this rapidly changing environment. Thus it is fundamental to develop a taxonomy that reflects their aspirational goals and the reality of existing inequity, lack of capacity and lack of a coordinated response mechanism.

NeSPA recommends that a high level task team be established to develop a national e-skills taxonomy that can be understood within the national planning and treasury functions and across the full spectrum of stakeholder groups.

Table 13: The NeSPA 2013 recommendations for building an e-skills framework and taxonomy

NeSPA 2013 Recommended Actions
1. ***Establish*** a ***high level working group*** that can effectively analyse and adapt current international initiatives to develop an appropriate South African e-Skills taxonomy and framework.
2. ***Establish*** an ***on-going engagement*** with ***global leaders*** in the area of ***e-skills thinking*** *and* ***implementation***.
3. ***Conduct*** a ***high level workshop involving*** the NPC, DPME and international actors to ***define*** an appropriate ***taxonomy*** and ***e-Skills Framework*** in early 2014**.**

3.2.6 Establishing an e-Content Development Mechanism

The ITU Global ICT Forum on Human Capacity Development and the 2nd e-Skills Summit (held in Cape Town in October 2012) urged the creation of locally appropriate content development and dissemination on all electronic platforms to ensure appropriate context and cultural relevance. The study tours to various countries since 2011 by representatives of e-Skills Institute and CoLabs also confirmed that e-skilling for job creation and job opportunities is also tightly linked to the local content development and online presentation thereof[47]. This finding across such a wide environmental context underpins the necessity of the establishment of an e-Content Development Mechanism.

Table 14: The NeSPA 2013 recommendations for the establishment of e-CDM

NeSPA 2013 Recommended Actions
1. ***Establish an e-Content Development Mechanism*** for the creation of locally appropriate content development and dissemination on all electronic platforms in order to ensure an appropriate context and cultural relevance and also convenient for self-directed learning.

3.2.7 Strengthening Organisational Transformation (e-SI, NEMISA, ISSA)

The e-Skills agenda is a multi-disciplinary approach that goes beyond mere technology training and involves a broad spectrum of competency, needs and delivery options for an emerging Knowledge Society – thus, not allowing an 'in-silo', uncoordinated approach. Hence the establishment of the New Single Entity within the context of a key national catalytic collaborator for e-skilling the nation is critical for advancing the development of South Africa within the context of national goals (a priority defined in NeSPA, 2010).

[47] e-SI (2012)Minute to Minister: *Report on the Multi-Stakeholder International Exchanges Programme to Australia and New Zealand*, November 2012.

The New Single Entity for e-Skilling set up using an already established Section 21 Company (NEMISA) will lead the coordination, integration, creation and implementation of e-skills interventions, including research, monitoring and evaluation, and innovation. This will be done by confirming and extending the existing multi-stakeholder collaborative network of partners across universities, FET colleges, NPOs, corporate and global development agencies. This collaborative network will, in turn, contribute to the "massification" of e-skills delivery at all levels of society, thought-leaders, e-practitioners, e-users and ICT-non-literate citizens.

The further goal of this New Single Entity for e-Skilling (hereafter referred to as "The Entity") is to leverage existing ICT education and training expertise, infrastructure and courses and help existing service providers to better align to the MTSF 2009-2014, NDP 2012, MDGs and the WSIS Plan of Action. The Entity will collaborate with all e-skills stakeholders and national and international institutions in ways that will contribute to new curriculum planning, course development and courses. The New Single Entity for e-Skilling will also identify the gaps, shortages and mismatches in course content regarding the demand for ICT and ICT-related skills and competencies across organisational boundaries. This will be done through broad consultation and the formalisation of relationships between The Entity and the multi-stakeholder community to ensure alignment between the current and future skills supply and demand.

Furthermore, it is envisaged that The Entity for e-Skilling will explore appropriate, and innovative, ways to address systemic problems and other inefficiencies and weaknesses in achieving learning success. The Entity will also build a formalised multi-stakeholder aggregation and collaborative network that allows linkages between outputs and impact and helping existing e-skills service providers to demonstrate measurable impact against national strategic plans (MTSF, NDP). The Entity will implement a monitoring and evaluation framework in order to aggregate the uptake of ICT within the SA society and consistently address the opportunities emerging between supply and demand of e-skills. Consequently, it will address many of the reasons for the current shortage of e-skills in the country. The Entity will work on increasing the pool of entrants, improving throughput and graduation success rates, continually facilitating the introduction of new and updated courses and approaches in response to the requirements of business, government, education, civil society and organised labour. It will further focus on up-skilling and re-skilling those whose existing qualifications prevent them from finding work, those who are not maximally effective within their current jobs, and among trainers and educators. It will also facilitate, coordinate and help massify approaches to increase e-social astuteness across the full spectrum of society.

The Entity for e-Skilling will be formed by merging the following government agencies:

- e-Skills Institute (e-SI)
- ISSA, a directorate in the DoC established to deliver appropriately skilled software engineers for the space industry. The programme was officially terminated in 2005. Since then the remaining staff mainly focused on the development of software applications for Government.
- NEMISA, originated as the Broadcasting School of South Africa, established in 1998. It was established as a non-profit organisation (Section 21 Company) in terms of the Companies Act (1973) in 2001. Its main role was to deliver students with the requisite skills for the broadcasting industry i.e. radio and television. Over the years it added courses in animation and graphic design.

As an entirely new organisation, The Entity for e-Skilling will be in a position to consider the current supply of and demand for skills, an appropriate portfolio of offerings, and innovative ways of teaching and learning from a variety of perspectives and without needing to defend entrenched opinions. At the same time as a Section 21 Company sitting outside of, but aligned to, Government it will be able to more effectively collaborate with stakeholders that have in the past been in

competition with each other. This does not mean that the very significant challenges that they will face as a new organisation are not being recognized.

Table 15: The NeSPA 2013 recommendations for strengthening organisational transformation of the e-Skills Institute

NeSPA 2013 Recommended Actions
1. *Complete* the merger and ***constitution*** of ***The New Single Entity for e-Skilling***.
2. Obtain exceptionally ***capable staff*** to ***build credibility*** and a ***brand***.
3. *Continue* to ***coordinate*** the ***national e-skills efforts*** and building of ***e-Skills Integration for Impact*** and the **e-*Skills Ecosystem***.
4. Position the New Single Entity for e-Skilling as an ***exchange*** of information regarding the urgent e-skills initiatives to support a focussed shared value proposition for all stakeholders working on e-skills interventions.
5. *Continue* to strengthen ***research, innovation*** and ***aggregation*** through ***ResNeS*** and the **e-*Skills Knowledge Production and Coordination CoLabs***.
6. *Monitor implementation* of ***NeSPA 2013*** and ***evaluate*** its ***impact*** against ***MTSF*** and ***NDP***.
7. *Ensure development* of ***e-skills policies*** that will ***support*** and ***strengthen*** the ***NeSPA 2013 recommended actions*.**

3.2.8 Reposition e-Centres as Smart Community Knowledge Canters in Urban, Peri-urban, Rural and Deep-rural Communities

The analysis of the activities and usage of the existing e-Centres suggested that they are not optimally utilised for supporting the local socio-economic development and, thus, are not contributing sufficiently to building capacity required to be effectively engaged in the emerging socio-economic environment which is increasingly dominated by new forms of ICT. Hence, the delegates of the 2nd e-Skills Summit and the ITU Global ICT Forum on Human Capacity Development (Cape Town, October 2012) supported the concept of repositioning the community e-Centres into Smart Community Knowledge Centres. These centres will exist in all geo-spatial areas (urban, peri-urban, rural and deep rural) and will provide ICT-enabled space in which members of local government, business, education, healthcare institutions and the general public will work together to improve the socio-economic status of a community.

We define Smart Community Knowledge Centre as a place where citizens can access ICT and learn to use these technologies in a personal (e-astuteness) and socially astute (e-social astuteness) way in order to fulfil their own socio-economic needs and support the fundamental requirements of a developmental state as outlined in the six pillars that underpin the NDP.

The primary aim of a Smart Community Knowledge Centre is to improve the lives of the community members and enable them to be more self-sufficient by not only giving the citizens necessary e-skills but to help them to become e-estute and e-socially astute. Smart Community Knowledge Centres will ideally also provide ICT infrastructures such as computers and Internet connectivity which can be used for a range of options such as learning, training and communications. However, the ICT infrastructure is primarily a mechanism and an important driver that will enable developing a smart community and preparing its members for equitable development and the communal economy socio-economic sustainability through three key programmes (Figure 9):

- Education
- Applied Knowledge
- Entrepreneurship.

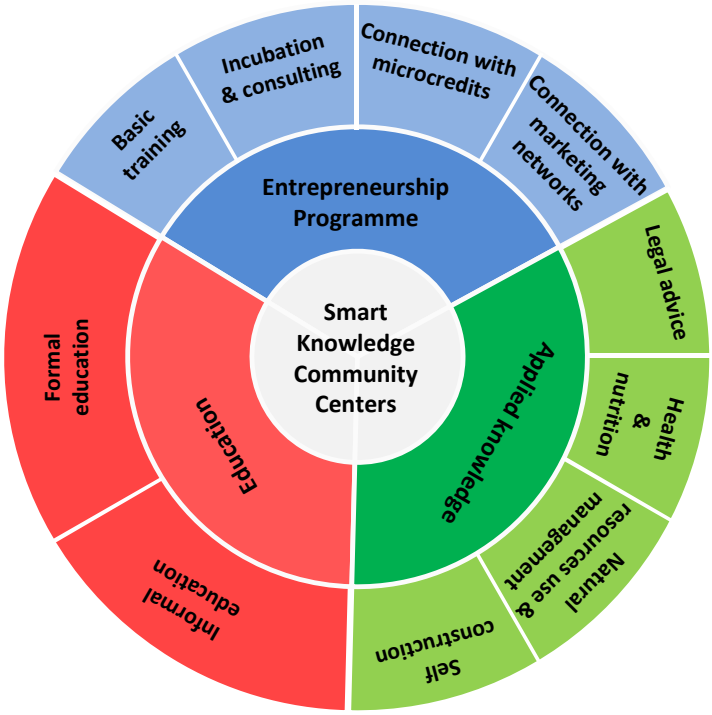


Figure 9: Proposed Action Targets of Smart Community Knowledge Centres (Source: e-SI working material)

The ***Education*** programme includes both ***formal*** and ***informal*** education, while the Applied Knowledge programme includes: (i) ***Legal advice***, (ii) ***Health*** and ***Nutrition***, (iii) use and management of ***Natural Resources***, and (iv) ***Self construction***.

The Entrepreneurship programme is aimed at increasing employment, self-reliance and local economic development and consists of: (I) ***Basic training***, (ii) ***Incubation*** and ***Consulting***, (iii) Connection with ***Microcredits*** and (v) Connection with ***Marketing Network***.

The Applied Knowledge programme is aimed at assisting the Smart Centres community members to practically apply the acquired knowledge and skills in everyday situations: be it for (i) obtaining ***legal advice***, (ii) obtaining ***health*** and ***nutrition guidance*** and ***help***, (iii) ***building capabilities*** for the ***use*** and ***management*** of the community's ***natural resources*** or (iv) ***building self-capacity*** through, for example, building and applying e-astuteness and e-social astuteness.

Table 16: The NeSPA 2013 recommendations for repositioning of e-Centres as Smart Community Knowledge Centres

NeSPA 2013 Recommended Actions
1. ***Continue activities*** **r**egarding ***repositioning*** e-Centres as ***Smart Community Centres*** by selecting e-Centres that ***already have locational***, ***physical, technological*** and ***human capacities*** to realise the above described aims.
2. ***Prepare*** other e-Centres for ***repositioning*** as ***Smart Community centres*** by capacitating them for the purpose. This ***capacitating*** should ***include*** the centres from ***all geo-spatial areas*** (urban, peri-urban, rural and deep rural) and should be carried out by the Provincial ***e-Skills Knowledge Production and Coordination CoLabs*** and their stakeholders. The ***New e-Skills Entity*** will have a national ***coordination role***.
3. ***Use*** the ***advocacy*** and ***awareness campaigns*** and ***activities*** to ***promote Smart Community Centres*** as the ***hubs*** of the ***local ICT-supported*** socio-economic ***development***.

3.2.9 Developing and facilitating a National e-Skills Curriculum and Competency Framework (NCCF)

Currently, the e-Skills Institute has commenced a journey of establishing a base for the aggregation of e-skills curriculum development within the ***National e-Skills Curriculum and Competency Framework*** (NCCF). This Framework directly addresses the strategic needs of South Africa (e.g. MTSF 2009-14; NDP 2030) and points to the matters outlined in the 2012 WEF Networked Readiness Report. The aim of this Framework is to apply and contextualise relevant worldwide "best practice" (e.g. UK, Australia, New Zealand) and the experience of countries with similar developmental agendas (e.g. Mexico, Kenya, Rwanda, Cuba) in ways that can be amplified by a range of service providers across the multi-stakeholders network architecture: Government, Business, Education, Organised Labour and Civil Society.

As outlined in the e-SI document "Towards an e-Skills National Curriculum Competency Framework and Certification Guidelines", the NCCF is critical for ensuring that: (i) all areas of e-skills need are provided for, (ii) there are clear structured pathways for progression, and (iii) at each stage learners are provided with sufficient information that will help them to make decisions about where to go next. This document also recommends that the NCCF should be: (i) clearly linked to job roles and opportunities, (ii) relevant to both individuals and employers and (iii) clear about learning and development goals for both life and work. This framework recommends focus on the following e-skills areas:

- Identify and articulate a clear value proposition for adoption of a competence framework by stakeholders; the solution must be demand-driven rather than committee-driven, and the development of value driver models for each stakeholder community is an important next step;
- Adopt a multi-stakeholder partnership approach encompassing industry and academia, industry and civil society partners – recognised as key to establishing a successful competence framework which adequately reflects the needs of the different stakeholders;
- Develop increased brand awareness to support a "virtuous cycle";
- Ensure access to the NCCF is open and free, encouraging adoption by all stakeholder communities;
- Promote NQF initiatives to counter low levels of awareness, and therein, diminished value;
- Develop brand recognition including the benefits of the NCCF in order to motivate certification providers to undertake the certification mapping process;
- Use the framework to enable greater transparency of standards;
- Seek practitioner-led clarification and definition of the roles for e-skills development. These can then be used to provide supporting development for a foundation syllabus for education and training;

- Facilitate demand-driven, high-level programme development in which the inclusion of real-world practitioners is of key importance;
- Ensure the courses undergo an appropriate accreditation process to safeguard their relevance and validity;
- Define a suitable approach for the provision of relevant lifelong learning programmes. These programmes should be aware of the dynamic environment in which we operate and the need to update their competences accordingly.

The e-Skills National Curriculum and Competency Framework, as outlined in Figure 2, is closely linked to the development of the e-skills taxonomy and, in fact, largely depends on it. Hence, it is recognised by this National e-Skills Plan of Action 2013 that both the NCCF and the e-skills taxonomy should reflect South Africa's strategic developmental plans such as MTSF and NDP. Furthermore, it has to be linked to the current stakeholders (Business, Government, Education, Organised Labour and Civil Society) needs, particularly in regard to the current and projected future needs.

Table 17: The NeSPA 2013 recommendations for developing and facilitating an e-Skills National Curriculum and Competency Framework (NCCF)

NeSPA 2013 Recommended Actions
1. ***Complete development*** of the ***e-Skills National Curriculum and Competency Framework*** in a way that will ensure its ***relevance*** to the national developmental strategic programmes such as ***MTSF*** and ***NDP***.
2. ***Ensure involvement of all major e-skills stakeholders*** (Business, Government, Education, Organised Labour and Civil Society) in order to make the NCCF relevant to these stakeholder groups.
3. ***Use e-Skills Environmental Scans*** to help ensure continuous relevance of the NCCF for developing an e-skilled workforce for ***current*** and ***future socio-economic needs*****.**
4. Define a suitable approach for the ***provision of relevant lifelong learning programmes***. These programmes should appreciate the dynamic nature of both operational and strategic environments due to the impact of ICT and hence the need to continually update relevant competences.

4 Delivery Plan for Impact

This National e-Skills Plan of Action 2013 acknowledges its concrete support to MTSF 2009-14 and the National Development Plan 2030 by primarily addressing current national challenges related to: (i) the education system's failure to produce sufficient numbers of people to work in the ICT sector, (ii) the education system's failure to produce the required skills necessary for advancing the South African Knowledge Society (Information Society and Knowledge Economy), (iii) the absence of central coordination of demand and supply of e-skills and aggregation of data related to the building of e-skills capacity, which results in (iv) difficulties to make informed strategy and policy decisions. It is recognised by the government and other e-skills stakeholders in the country that failure to address these challenges would result in South Africa's further drop in global development rankings in line with the disastrous fall in the WEF global e-readiness position from 47th in 2007 to 72nd in 2012.

This e-Skills Plan of Action is particularly concerned with delivering an appropriate implementation plans at the national and the provincial levels that will deliver impact from the planned e-skills interventions. In that regard, it is important to create a capable e-skills ecosystem, set priorities, identify factors that will enable implementation of the e-skills agenda and define necessary aggregated action. The planning and implementation of e-skills agenda should be supported by monitoring and evaluation of the expected impact from the outset.

4.1 Developing an e-Skills Ecosystem

"*An ICT ecosystem encompasses the policies, strategies, processes, information, technologies, applications and stakeholders that together make up a technology environment for a country, government or an enterprise*" (Open ePolicy Group, 2005).

It is widely recognised that ICT is one of the enablers for improving socio-economic platforms, opportunities and life conditions of people in poor circumstances. Rapidly increasing Internet broadband, electronically enabled social networks, real-time sharing and augmented reality, to mention a few of the advances in the social and economic appropriation of ICT, have played a role in transforming the social and economic life of both developed and developing worlds. Ever-developing ICT brings new possibilities for improving and transforming socio-economic activities and human relationships - requiring a rapid and continuous e-skilling, re-skilling and up-skilling. Hence, the South African stakeholders that actively participate in developing and implementing the e-skills agenda (KSPs) have recognised a need for an "e-skills ecosystem" that would support adoption and socio-economic appropriation of ICT. When developed fully, such an e-skills ecosystem will be able to support an accelerated e-skills development programme in South Africa, thereby contributing to the equitable prosperity of its citizens and global competitiveness of its developing Knowledge Economy. However, current literature or praxis does not offer examples for such a system that could be possibly replicated and adopted within a developmental state such as South Africa.

NeSPA 2010 has set the foundation for such an ecosystem by introducing a system structure through the governance of the e-skills framework in South Africa (e-Skills Institute, e-Skills Knowledge Production and Coordination CoLabs, e-Community Centres) in conjunction with the Multi-stakeholder Network Architecture. But other necessary elements of an e-skills ecosystem and their relationships are still to be fully defined. This document (NeSPA 2013) gives further descriptive guidelines for development of the e-skills ecosystem in South Africa (Figure 7) by briefly describing:

- foundational principles;
- structures, governance and regulations;
- national multi-stakeholder network architecture;
- aims of this e-skills ecosystem;
- necessary drivers;
- geo-spatial scope;
- need for a local e-skills taxonomy and
- tentative maturity levels of such an ecosystem.

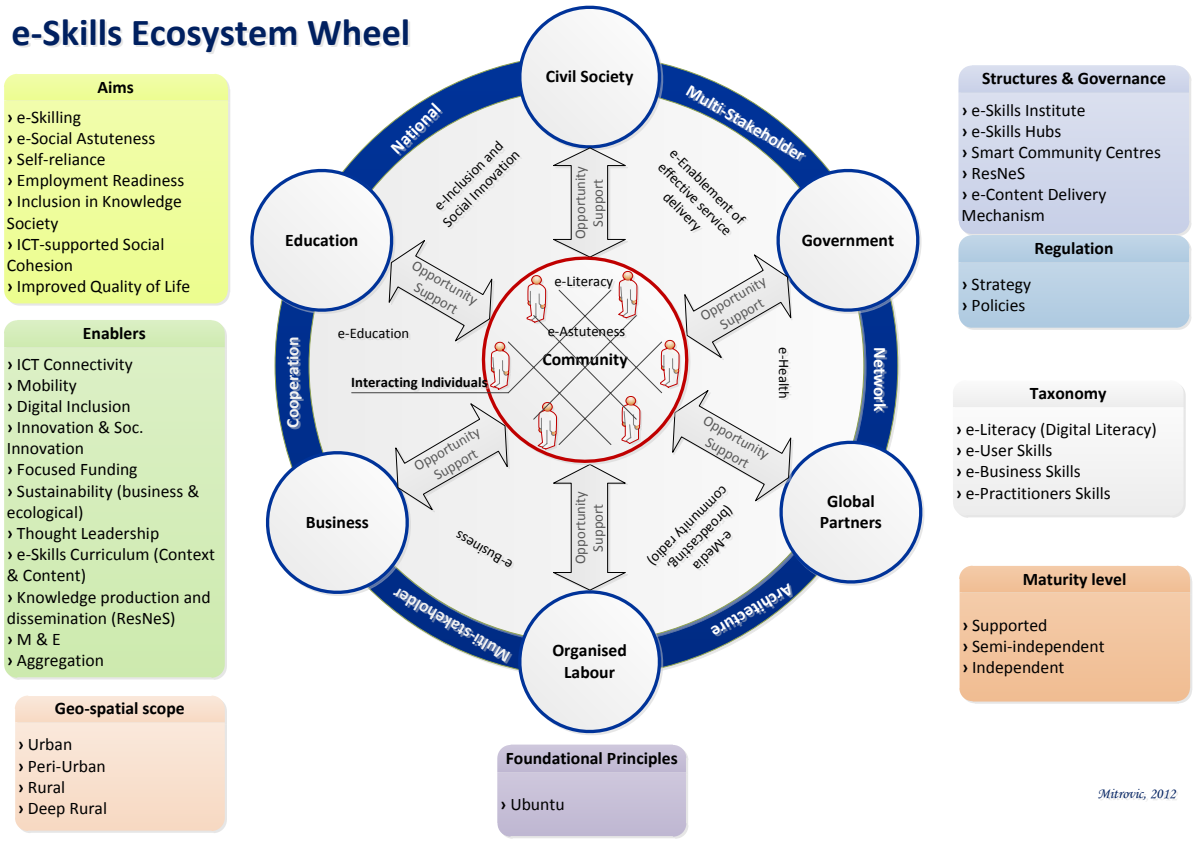


Figure 8: e-Skills Ecosystem Wheel (Source: Mitrovic, 2012[48])

It is necessary to emphasise that the e-skills ecosystem is not static but a dynamically changing system that should reflect social, political, economic and technological changes. Thus, this system should be regularly reviewed and revised in order to optimise efforts to e-skilling the nation in the urgent matter of preparing it to engage with a global socio-economic system dominated by ICT.

1. Foundational principles

The foundational principles for the e-skills ecosystem are those sets of indigenous South African and African philosophical and political principles stated in **Ubuntu**, which have already been accepted by the South African government and the society.

The **Ubuntu** philosophy recognises the importance of the collective human action for the common good by emphasising that "*people are people thru other people*"[49]. The following words of Steve Biko[50] illustrate the significance of this philosophy for the human development, as seen from the indigenous African context:

> "*The great powers of the world may have done wonders in giving the world an industrial and military look, but the great still has to come from Africa - giving the world a more human face*".

The Ubuntu principles of valuing the good of the community above self-interest and to help others in the spirit of service are crucial for developing an effective e-skills ecosystem that enables developing skills and knowledge for equitable prosperity and global competitiveness, respecting human dignity through inter alia developing e-social astuteness, positive Social Capital and (much

[48] Mitrovic, Z. (2012) *Building an e-Skills Ecosystem in South Africa*, Working Paper, unpublished.
[49] In Xhosa "Umntu ngumntu ngabanye abantu" means "people are people thru other people"; in Zulu the word Ubuntu means "humanness".
[50] Biko, S. (1978) *I Write what I like*, London: Heinemann, page 46

needed) Social Cohesion. The e-Skills Institute's approach recognises the value of Ubuntu in achieving sustainable socio-economic benefits across the full spectrum of South African society.

2. Aims

The successful utilisation of a South African e-skills ecosystem is ultimately linked to improving the quality of life for all citizens and their equitable inclusion in an emerging Knowledge Society. The aim of skilling people through such an ecosystem is to give them: (i) the skills and knowledge for the employment readiness or starting their own business, (ii) e-astuteness and e-social astuteness for an increased self-reliance and appropriate application of the skills and knowledge for personal and community development. E-social astuteness developed in this manner can help in developing stronger relationships between community members and, ultimately, developing more cohesive communities conducive to supporting the equitable prosperity and global competitiveness of its members.

3. Enablers

Building a successful e-skills ecosystem requires embedding elements that create or support the e-skills actions – these elements are here called "drivers":

- ***ICT connectivity*** and, increasingly, ***mobility*** are the main presuppositions for creating an interactive[51] e-skills ecosystem.
- In this era of all-pervasiveness of ICT and information, ***Digital Inclusion*** of all citizens is one of the pre-requisites for ***effective service delivery*** and ***ICT-supported sustainability development***[52].
- Developing continuous ***ICT-supported competitive*** and **social innovations** with the requisite skills are key drivers to achieve more equitable prosperity and global competitiveness in the Knowledge Society.
- Having an appropriate ***national e-skills curriculum***, which adheres to the **local context** and provides ***locally relevant content***, is an indispensable driver of an e-skills ecosystem.
- This must be accompanied by effective ***e-skills knowledge production*** and ***dissemination*** through the ***e-Skills Knowledge Production and Coordination CoLabs*** and the ***Research Network for e-Skills*** (ResNeS).
- An e-skills ecosystem will not be possible without having ***adequate thought leadership*** at all levels of e-skills planning and execution accompanied by ***focused and adequate resource allocations***.
- The successful function of the e-skills ecosystem also significantly depends on the ***monitoring and evaluation*** of the system's structures, functions, inter-relations and the system's ability to support an impact on people's life.
- ***Aggregation*** *of* ***resources***, ***efforts*** and, ***results*** that positively impact people's capability to develop skills for a more equitable prosperity and global competitiveness, must be an integral part of this e-skills ecosystem.

4. Geo-spatial scope

As explained by UNESCO[53], today, as in the past, the control of knowledge has caused serious inequality, exclusion and social conflict since 'knowledge' was long the exclusive domain of "tight circles of wise men and the initiated few". Secrecy was the organising principle behind these exclusive knowledge societies. Having stated that the building of an equitable society, which is capable of global competitiveness, is its highest priority, the South African government is fully committed to a more equitable development of both individuals and communities regardless of the geo-spatial areas urban, peri-urban, rural and deep rural. It is recognised by various e-skills

[51] For example, a system based on the collaborative multi-stakeholders and interconnected citizens.
[52] Doing good business while preserving or bettering ecological environment and being socially responsible.
[53] UNESCO (2005) *Towards Knowledge Societies*, United Nations Educational, Scientific and Cultural Organisation.

stakeholders that creating value is about creating new knowledge and capturing its value for more equitable socio-economic development. It is also recognised that new knowledge cannot be beneficial if it is tightly bound within prescribed socio-economic circles - be these industry, political, societal or geo-spatial boundaries. Thus, more equal opportunities for the access, creation and use of knowledge and praxis in an environment increasingly dominated by new forms of ICT must be given to all South African people.

5. Structure, Governance, Regulations and Maturity levels

The e-Skills Ecosystem in South Africa is currently emerging with already established governance and system structure. At present the system is governed by the e-Skills Institute, the provincial e-Skills Knowledge Production and Coordination CoLabs, and their emerging linkages with a number of Community e-Centres. Although the system is centrally governed and its parts are funded by e-SI, the CoLabs have the mandate to flexibly support the national e-skills agenda by taking into account their mandate and the contextual circumstances. Being a cooperative endeavour with the associated universities[54], the CoLabs are also governed in accordance with the regulations of these universities. The multi-stakeholders' interest is planned to be represented in the CoLabs' governing bodies, thus ensuring that the e-skills agenda is appropriately aligned to the needs and interests of KSPs. The mechanism of involving these stakeholders (e.g. MoU, particular collaboration contract, and alike) should be carefully developed to maximise the value propositions that they can bring to and gain from the collaboration i.e. a Shared Value Proposition[55].

This e-skills ecosystem structure is supported by the emerging research and development body, the Research Network for e-Skills (ResNeS) and the e-Content Delivery Mechanism (e-CDM). While ResNeS is responsible for coordinating and developing a research and evidence based approach to furthering knowledge, required for an informed and impact-oriented e-skills strategy and policy-making, the e-CDM provides a mechanism for delivering contextualised and localised content necessary for appropriately skilling individuals and communities for more equitable opportunities to effectively participate in the emerging Knowledge Society.

The concept of the maturity of an e-Skills Ecosystem is borrowed from theories of societies as self-organising systems[56]. The e-skills ecosystem in its embryonic phase has been organised and fully governed from a single point of interest and power. The single point of interest in South Africa was (and still is) the e-Skills Institute, which was mandated by the Department of Communications and subsequently endorsed by the Parliamentary Portfolio Committee for Communication to centrally coordinate the effort with seed funding and then to develop a separate function. This can be regarded as a basic (Supported) level of e-skills ecosystem maturity. On the other end is an independent, self-organising e-skills ecosystem in which the government is not the main actor but only setting conditions and regulations for realising the potential of the e-skilled individual actors to successfully transmit their knowledge and skills to other members of a community. This level (here called Independent maturity level) requires a very high level of e-social astuteness, social capital and social cohesion. It is posited here that the transition period (Semi-independent maturity level) in this case is that one in which the central organisation weakens, as there is an increase in e-social astuteness and the capability of communities to self-organise.

6. e-Skills Taxonomy

An appropriate, context-dependent taxonomy, which provides a coordinating framework, proactively aligning e-skills research to national priorities, business needs, and emerging technology capabilities and establishing a sound credible and active body of research collaborators, is a key

[54] Durban University of Technology, University of Pretoria, University of the Western Cape, University of Venda, Vaal University of Technology, Walter Sisulu University

[55] http://www.pwc.com.au/consulting/publications/shared-value.htm

[56] The notion was introduced by W. Hofkirchner (2003) *Towards a Unified Theory of Information*, In: Triple C Vol. 7 (32), N. 24. http://www.triple-c.at/index.php/tripleC/article/view/114

element of an e-skills ecosystem. These elements of e-skills taxonomy, shown in Figure 7, are taken from NeSPA 2010 and are subject to changes in accordance with the development of a new taxonomy framework, which is explained in the next section.

Table 18: The NeSPA 2013 recommendations for the e-Skills Ecosystem

NeSPA 2013 Recommended Actions
1. Fully ***develop e-Skills Ecosystem conceptually/theoretically***.
2. In accordance with the fully developed conceptual/theoretical model, ***continue development of South African e-skills ecosystem*** that will fully support e-skilling the nation for equitable prosperity and global competitiveness.

4.2 NeSPA 2013 Priorities

The highest priority of all programmes and activities of the e-Skills institute is to support South Africa's strategic socio-economic developmental programmes and goals. By doing this, the e-SI's plans and programmes – including this e-Skills Plan of Action 2013 - will also support the international developmental agendas such as MDGs and the WSIS Plan of Action. In that regard e-SI has identified the priority areas of intervention as:

- e-Inclusion and Social Innovation that includes Smart Community Centres managers in the local communities;
- e-Participation in community, social, education, innovation and governance processes, particularly involving young South Africans;
- e-Astuteness across society to ensure effective appropriation of rapidly emerging ICT devices and capacity in ways that address the aims of the NDP;
- ICT for rural development, including both production and distribution in existing and new industries, market intelligence and positioning, growing creative industries opportunities, focussed government service delivery, communications and climate forecasting, environmental monitoring, reduction in urban migration and community interaction;
- Enhanced government e-enablement through skilling of employees and use of Web 2.0 technologies for service delivery, e-participation and e-democracy, and an efficient use of broadband;
- FET ICT skills development, multimedia training and networking training in the educational sector;
- Building of the e-practitioner base within the country which valorises the development of e-skills and applications for an e-socially astute society;
- Creative Industries including that of building the e-entrepreneurship base in the private sector;
- Free and Open Source Software (FOSS);
- Other skills needed in all these sectors, particularly in the areas of teacher training in the use of ICT and e-health, which are key enablers in economic and social development.

In particular, the e-Skills Institute has planned to achieve the following in the next five years:

1. Producing ***Thought Leaders*** (across all stakeholders groups) by attaining the following:
   - engage 100 postgraduate students;
   - organising 60 seminars and lectures for senior decision-makers within the stakeholders groups as well as for established researchers from other disciplines and emerging e-skills researchers; the above activities will help to engage 100 e-skills researchers that will assist forming a firm theoretical and conceptual foundation for e-skills interventions as well as for assessing the interventions (aggregation, monitoring and evaluation);
   - Organise regular biannual e-Skills Summits and annual e-Skills Colloquiums.

2. Supporting the ***ICT sector*** and ***Creative Industries*** by facilitating the enrolment of e-skills related:

- 50 PhD students;
- 100 Honours and Masters level students;
- 500 Bachelor level students; 10 internationally renowned scholars;
- It is also envisaged that the e-SI will help facilitate the establishment of a range of industry-related and recognised qualifications (short courses and postgraduate diplomas).

3. ***Developing e-Skills users*** across key stakeholder sectors. It is envisaged that through the facilitated efforts of the e-SI, one million ICT users will have recognised, industry-related qualifications relevant for their field of work (e.g. KSPs).

4. ***e-Skilling Communities*** by achieving:

- 10 million e-literate citizens able to socially appropriate ICT;
- Capacitating 20% of Civil Society organisations for delivering skills necessary for the social appropriation of ICT.

Furthermore, e-SI proposes the following priorities to be accomplished in the next 5 years:

- 50% increased intake in relevant e-skills course and programmes, organised by universities, FET colleges, training institutions and civil society organisations, that are recognised and accepted by industry;
- 75% of graduates appropriately e-skilled for employment and entrepreneurship;
- Assisting in the establishment of at least two (2) new industries and/or service provision options that will support the current national industrial strategy in order to create sustainable employment, aligned to job opportunities for the knowledge-based economy such as the Creative Industries;
- 100% increase in the number of substantive and targeted e-skills research programmes;
- 100% increase of undergraduate, postgraduate and short courses relevant to the country's e-skills needs and delivered through open and distance learning;
- 100% access to e-skills for Digital Inclusion and Social Innovation in the rural and peri-urban communities – particularly for unemployed youth, women and "vulnerable groups" such as people with disabilities or minority groups.

Table 19: The NeSPA 2013 recommendations for e-Skilling Priorities

NeSPA 2013 Recommended Actions
1. It is recommended that the above-mentioned ***e-skilling priorities*** become ***integral part*** of the ***e-SI Business Plan*** and also the ***e-Skills Knowledge Production and Coordination CoLabs*.**
2. ***e-Skills Knowledge Production and Coordination CoLabs*** should analyse the e-skills demand and supply in their respective provinces as a part of their environmental scans and ***set e-skilling priorities*** that ***will provide coordinated support for*** the ***national developmental strategies*** (e.g. NDP, MTSF) and the ***provincial strategic developmental plans***.
3. ***In conjunction*** with the ***Smart Community Centres***, ***e-Skills Knowledge Production and Coordination CoLabs*** should ***analyse*** the local community e-skills ***demand and supply to identify gaps and thus prioritise*** the ***current*** and ***future e-skills actions*.**

4.3 Key enabling factors for achieving defined priorities

The e-skills Institute realises and the delegates at the 2nd e-Skills Summit confirmed that these above-mentioned priorities cannot be realised without having in place mechanisms to address the key enabling factors. While the responsiveness to the international environment and the key challenges outlined in the NDP 2030 represents the main drivers, the global and South African

experience suggests that an effective e-skilling for more equitable prosperity will not be possible without having in place the following key environmental enablers:

- ***ICT Connectivity***: affordable broadband connections in all geo-spatial areas (urban, peri-urban, rural and deep-rural) are required as the first step in the socio-economic appropriation of ICT;
- ***Mobility***: an embedded and coordinated response to the increasing mobility of new ICT devices and capacity across all forms of service delivery, business development, work environments, education and training and the social context;
- ***Digital Inclusion***: a strongly embedded policy and praxis approach across government, business and education to enable effective participation of individuals and communities as clients, customers, members of society, family, groups, clubs and participants;
- ***Innovation*** and ***Social Innovation***: a conducive environment for innovation and creativity in all socio-economic spheres as the means for developing successful change in addressing major societal, economic, technological and educational issues;
- ***Focused Resource Allocations and Support Funding***: transversal government and multi-stakeholder funding to radically improve national rankings in the global e-readiness indicators and in developing national capacity to deliver more equitable opportunities in a socio-economic platform that is increasingly dominated by new forms of ICT;
- ***Sustainability***: the development of a business-friendly environment that understands the opportunities in the emerging economy and that can significantly increase both business development and employment options;
- ***Thought Leadership***: that can facilitate a strongly supported coordinated and integrated effort to realise opportunities across KSPs;
- ***e-Skills Curriculum***: a recognised and coordinated e-skills curriculum response across all levels of education and training to provide the context and content needed for synchronised, impact-driven e-skilling actions across the geo-spatial spaces and the stakeholders' efforts;
- ***Effective knowledge production and dissemination***: As a key underpinning variable of developing a national e-astuteness and e-social astuteness across all levels of society, relevant processes for the development and dissemination of new knowledge and praxis are required. To be effective, this necessitates a coordinated and aggregated response mechanism. The provincial e-Skills Knowledge Production and Coordination CoLabs and the Research Network for e-Skills (ResNeS) have been established to facilitate the development of an architecture that can assist this process;
- ***Monitoring*** and ***Evaluation***: A foundation stone of effective policy development and service delivery is the development of a relevant process to monitor progress and evaluate effort against national, provincial and local plans. The process must be enacted at the outset of effort if it is to deliver impact against the desired goals which are mostly multi-disciplinary and multi-organisational involving actors across KSPs. Delivering e-readiness, e-astuteness and e-social astuteness across the full spectrum of South African society requires the development of effective measuring tools and applications that can both inform process and demonstrate progress of e-skills interventions;
- ***Aggregation***: In a space that has emerged in such a disjointed manner, there are many actors, programme/project responses that operate within perceived and real mandates without any effective coordination or integration. Further, the new operating environment enabled by ICT has limited respect for national boundaries and advantages dramatically escalating economies of scale which are delivering new value propositions across government, business and education. The established disjointed approach has obviously failed South Africa as demonstrated in WEF global e-readiness rankings (where South Africa has dropped from 47th place in 2007 to 72nd place in 2012). The current "in-silo" approach squanders resources and effort as well as creating unnecessary competition. The NDP highlights the necessity of an aggregated approach that is responsive to the international environment. The e-SI has developed the architecture, the approach and the support of

many actors across KSPs and international development agencies to address this matter of aggregation.

Table 20: The NeSPA 2013 recommendations to develop e-skilling Key Drivers

NeSPA 2013 Recommended Actions
1. The ***e-SI*** (New Single Entity for e-Skilling) to ***engage*** with ***ICT infrastructure development stakeholders*** and to ***advocate*** for ***affordable ICT broadband access for all*****.** This particularly applies to ***mobile access*** and ***affordability*****.**
2. The ***e-SI*** (New Single Entity for e-Skilling) to ***engage*** with all spheres of government and government agencies in order to ensure focused ***multi-stakeholder resource allocations and funding*** *to* ***deliver impact*** against the global ***e-readiness indicators*** and in ***developing*** a ***societal e-astuteness*** that can provide a more equitable approach in the emerging socio-economic dynamic which is dominated by new forms of ICT.
3. The ***e-SI*** (New Single Entity for e-Skilling) to ***engage*** with all spheres of government and other e-skills KSPs (particularly with Business and organised Labour) in order to ***advocate*** development of a ***business-friendly*** environment that understands the opportunities in the emerging economy and that can significantly increase both business development and employment options.
4. The ***e-SI*** (New Single Entity for e-Skilling), through its ***e-Skills Knowledge Production and Coordination CoLabs*** and ***ResNeS***, to facilitate development of the ***thought leadership***, ***e-skills curriculum, effective knowledge production and dissemination, monitoring*** *and* ***evaluation, aggregation, Digital Inclusion*** and ***Social Innovation***.

4.4 Aggregated Actions

> *"National Planning Commission painted a picture based on the aggregation of effort across South African society by using the words 'active citizenry', 'people centred development', 'improving coordination within government', 'collective responsibility' and 'implementation'. With these words he highlighted the need for coordination, aggregation and integration as being central to the National Development Plan"*.
>
> Trevor Manuel, Minister in the Presidency
> In launching the NDP 2030, 15 August 2012[57]

A number of e-SI documents stress that the pervasive and ubiquitous nature of the global spreading of modern ICT is rapidly redefining base concepts of "economies of scale" for socio-economic sustainability, both vertically and horizontally, across all spheres of service delivery, management, business analysis, education, innovation and research. Echoing the above citation from the National Development Plan, the e-Skills Institute has also identified that the lack of coordination across the full spectrum of service delivery, business, education and policy frameworks creates a significant impediment to addressing the serious matter of e-skilling South Africa. This is also seen as crucial for addressing equitable prosperity in South Africa and the global competitiveness of its economy.

The e-SI recognises that the current trends in the impact of ICT deployment demonstrates that aggregation of both supply and demand into increasingly large economies of scale are well beyond the capacity of traditional concepts of market competition within nation states to operate in the national interest. This causes an increasing shift across Governments, Education, Research & Development and Business towards new formal structural agency aggregations aimed at aligning

[57] See: http://www.info.gov.za/speech/DynamicAction?pageid=461&sid=29845&tid=79973

diverse capabilities around addressing issues of employment, innovation, productivity, inequity and skills development. It is thus concluded that nothing could be **more logical** than to fulfil the high need for a coordinated and aggregated approach to e-skilling South Africa.

Further, e-SI realises that with the borderless nature of ICT, business service providers are now coalescing into large oligopolies which make it difficult for small scale populations of even 50 million (such as the South African) to have a socially appropriated voice. In this context, traditional views of reductionist market based approaches in business, service-delivery, education, innovation and research suffer, suggesting that the need for national aggregation of effort should be given priority. 'In-silo' approaches, such as project-based or small scale efforts outside of the national aggregation architecture, create unnecessary competition, overlap and duplication of resources, innovation gaps and wasteful "sunk costs". This inevitably suggests a need to developing an aggregation architecture or platform for both supply and demand in the e-skills delivery, development, evaluation, innovation and policy development space.

The New Single Entity for e-Skilling, now in the final formation state, will foster aggregation of e-skilling resources, actions and results – particularly of the impact of the e-skilling actions on the equitable prosperity of South African citizens and global competitiveness of its economy. This Entity will build a formalised multi-stakeholder aggregation and collaborative network that allows linkages between outputs and impact and also help existing service providers to demonstrate measurable impact against national strategic plans. It will implement a monitoring framework to aggregate the uptake of ICT within society and consistently address the opportunities highlighted between supply and demand of e-skills to deliver against the MTSF 2009-2014 goals and the NDP 2012.

The e-skills aggregation that will better position South Africa for the Knowledge Society will be achieved through the enabling platform of a decentralised integrated collaborative architecture across all KSPs. The e-skills aggregation efforts will need to be monitored and evaluated through the national e-skills monitoring framework and with help of an e-skills virtual network in collaboration with key strategic partners. This virtual network is inter alia aimed at local, regional and national coordination, collaboration, aggregation and monitoring and evaluation.

Table 21: The NeSPA 2013 recommendations for e-skills Aggregated Actions

NeSPA 2013 Recommended Actions
1. ***Integrate, aggregate*** and ***commit*** to ***formal organisational architectures*** that ***link across stakeholder boundaries*****.** This ***integration*** and ***aggregation*** needs to be ***focused*** on ***impact*** on the ***equitable prosperity*** of all South Africans and the ***global competitiveness*** of the South African economy.
2. ***Spread awareness*** and ***advocate*** a ***need*** for the ***commitment*** of ***individual people*** at all levels to ***recognise*** the ***essential*** dimensions for ***new collaborative architectures*** outside of and across disciplines in ways that ***respond*** to the ***changing global*** and ***national operating environment*** and a ***recognition*** of the ***necessity*** for ***securing their future*** in the Knowledge Society.
3. By ***conducting*** the ***awareness*** and ***advocacy campaigns, influence the willingness of people at all levels*** *to* ***work with available resources***, i.e. to "make a start" with what is there, ***apply*** it in ***innovative ways***, ***recognise*** and ***embed social media, focus*** *on* ***providing benefit to individuals*** regardless of organisational impediments, move past blaming failures of existing systems and commit to filling the gaps with local solutions and local resources.
4. By ***conducting*** the ***awareness*** and ***advocacy campaigns***, ***influence the willingness of stakeholders*** to ***establish long term collaborations*** in ways that are beneficial for the stake-holders and the national e-skills agenda – and, ultimately, highly valuable for e-skilling the nation for equitable prosperity and global competitiveness.

4.5 Expected Impact and Monitoring and Evaluation

In South Africa, large gaps exist in trans-disciplinary and multi-stakeholders approaches to e-skilling across all KSPs creating very few well-articulated pathways between e-skills policy-making, theory, implementation, monitoring and evaluation, and societal impact. Assessing the outputs and outcomes against the planned actions and available resources is an important part of determining what effect the e-skilling actions have on the citizens and the workforce. However, addressing the e-skills shortages, e-skills gaps, and e-skills mismatches aimed at e-skilling the nation for equitable prosperity and global competitiveness cannot be appropriately evaluated unless the e-skilling actions are assessed against the strategic national developmental goals and agendas. This is clearly one of the reasons for tightly linking the recommended actions of this National e-Skills Plan of Action (NeSPA 2013) to the National Development Plan 2030 (NDP) and the Medium Term Strategic Framework 2009-2014. In monitoring and evaluation (M&E) terms, the impact of e-skilling actions led and coordinated by e-SI and its e-Skills Knowledge Production and Coordination CoLabs will be assessed against the developmental priorities spelt out in these strategic documents.

On the other hand, the e-SI (New Single Entity for e-Skilling) will monitor and periodically evaluate the execution of this National e-Skills Plan of Action to inform the evidence-based policy making that should propose possible corrective actions or reinforce delivery of impact against the NDP and MTSF. The same is recommended at the level of the e-Skills Knowledge Production and Coordination CoLabs.

Monitoring and evaluation of this NeSPA 2013 will be performed in accordance with the efficiency (outputs) and effectiveness (outcomes) of its execution and the impact the e-skilling actions have on everyday life of the South African population in terms of Digital Inclusion, poverty alleviation, equitable chances for employment and socio-economic prosperity.

In technical terms, the evaluation of e-skilling actions and the activities of the catalytic and coordination entities (e-SI, CoLabs, Smart Community Centres) will be done in accordance with the "Policy Framework for the Government-wide Monitoring and Evaluation System"[58] and the National Evaluation Policy Framework[59]. This is applicable to all entities in the national, provincial and local spheres of government. Hence, this National e-Skills Plan of Action (NeSPA 2013) has adopted the following definitions from the above-mentioned document (Table 22).

[58] Available at: www.thepresidency.gov.za/pebble.asp?relid=817

[59] DPME (2011) *National Evaluation Policy Framework*, Department of Performance Monitoring and Evaluation, The Presidency of the Republic of South Africa.

Table 22: Monitoring and Evaluation related definitions
(Source: Policy Framework for the Government-wide Monitoring and Evaluation System)

Term	Definition
Monitoring	Involves collecting, analysing, and reporting data on inputs, activities, outputs, outcomes and impacts as well as external factors, in a way that supports effective management. Monitoring aims to provide managers, decision makers and other stakeholders with regular feedback on progress in implementation and results and early indicators of problems that need to be corrected. It usually reports on actual performance against what was planned or expected.
Evaluation	This is a time-bound and periodic exercise that seeks to provide credible and useful information to answer specific questions to guide decision making by staff, managers and policy makers. Evaluations may assess relevance, efficiency, effectiveness, impact and sustainability. Impact evaluations examine whether underlying theories and assumptions were valid, what worked, what did not and why. Evaluation can also be used to extract crosscutting lessons from operating unit experiences and determining the need for modifications to strategic results frameworks".
Inputs	All the resources that contribute to the production of service delivery outputs. Inputs are "what we use to do the work". They include finances, personnel, equipment and buildings.
Activities	The processes or actions that use a range of inputs to produce the desired outputs and ultimately outcomes. In essence, activities describe "what we do".
Outputs	The final products, goods and services produced for delivery. Outputs may be defined as "what we produce or deliver".
Outcomes	The medium-term results for specific beneficiaries which are the consequence of achieving specific outputs. Outcomes should relate clearly to an institution's strategic goals and objectives set out in its plans. Outcomes are "what we wish to achieve". Outcomes are often further categorized into immediate/direct outcomes and intermediate outcomes.
Impacts	The results of achieving specific outcomes, such as reducing poverty and creating jobs. Impacts are "how we have actually influenced communities and target groups".

In particular, the monitoring and evaluation of this National e-skill Plan of Action (NeSPA 2013) will be done against the recommended actions specified through this document. However, it is important to stress that performing effective monitoring and evaluation is dependent upon defining appropriate indicators for success for all the recommended actions in NeSPA 2013 at both the national and provincial levels.

Table 23: The NeSPA 13 recommendations for Monitoring and Evaluation of e-Skills Actions

NeSPA 2013 Recommended Actions
1. The s-Skills related ***monitoring*** and ***evaluation (M&E)*** should be linked to the **impact** the ***e-skills actions*** recommended by this document ***have on the realisation of the NDP and MTSF.***
2. The ***e-SI*** (New Single Entity for e-Skilling) ***to provide an M&E coordination function*** within the NeSPA 2013 in a ***coordinated manner*** and *to* ***involve all relevant government departments and State Owned Entities*** in this process.

3. ***e-Skills M&E strategies*** of the ***e-SI*** (New Single Entity for e-Skilling) and the ***Knowledge Production and Coordination CoLabs*** should ***describe*** the ***approach*** these entities are to follow ***to create*** and ***operate M&E systems*** that ***produce credible, accurate information*** on an ***on-going basis*** that can be ***used*** to ***improve service delivery*** and the ***entity's governance***.
4. The ***e-SI*** (New Single Entity for e-Skilling) and the ***Knowledge Production and Coordination CoLabs*** should create and implement ***capacity building plans*** specifying ***how*** these entities will put in place the ***human capacity*** to ***fulfil*** its ***M&E functions***.
5. The ***e-SI*** (New Single Entity for e-Skilling) and the ***Knowledge Production and Coordination CoLabs*** should also ***create*** and ***implement*** the ***plans*** for an ***integration between these entities*** and also ***other e-skilling stakeholders*****.** The aim is to ***achieve aggregation*** of ***M&E*** for easier ***assessment*** of the ***impact*** that ***e-skilling actions produce***. This will also contribute to the multi-stakeholders ***knowledge sharing***, thus allowing for ***more informed future e-skills actions***.

Appendices

Appendix A: The NDP Priority Areas to be supported by NeSPA 2013

NDP Priority Area	NeSPA 2013 Action
***Pillar 1*: Unite around a common pillar to fight poverty and inequality**	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.
***Pillar 2*: Active citizenry *(e*-participation, e-democracy)**	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.
***Pillar 3*: Inclusive economy**	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.
***Pillar 4*: Build capabilities**	All 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.
Pillar 5: A capable and developmental state	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 achieved without a concerted effort to address the issues underlying South Africa's e-readiness rankings.
***Pillar 6*: Leadership throughout society to work together to solve problems**	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 society making best use of ICT including social media, it is difficult to see how a collaborative approach to problem solving can be developed.
An economy that will create more jobs - the NDP proposes to create 11 million jobs by 2030 -	e-skilling people for employment and entrepreneurship.

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

Appendix B: The e-Skills Institute Value proposition

1. The Context for a Government eco-system for developing social astuteness to make effective use of ICT for equitable prosperity

Governments build hard (physical) and soft (services) infrastructure based on an intention that individual and collective capability will make effective use of natural, manufactured and intellectual resources for individual and national prosperity. Success is based on many variables including history, homogeneity of purpose, culture and identity, population size, existing inequity and economic, social and cultural independence.

However what is clear is that in democracies and in most humane centrally managed societies no amount of provision (doing to)[60], or support (doing for) can succeed without a social, cultural and economic contract (doing with) based on trust and reciprocity between government and the people. This is particularly evident in developmental states where there are large inequities in living standards and opportunities. At the centre of this contract is individual and collective capability to maximise current circumstances in ways that are responsive to both current and future individual and collective need. This nexus which varies by national circumstance is most acute in developmental states with high inequity where the realities of developing and delivery of both "hard" and "soft" infrastructure involve long and difficult processes. Expectations (which are often not realistic) by the people are difficult to meet and problems are exacerbated by limited individual and collective capability to make effective use of what is available and what can be provided.

These matters are often complicated by the linear nature and purpose of government infrastructure and service delivery which by their very nature (structure, funding and reductionist focus) find it difficult to deliver against national goals in an integrated manner. This is particularly true with disruptive and ubiquitous interventions which are incrementally imposed or made available from "the outside". Such interventions are often fundamentally "life changing" and do not fit comfortably within the current achievable delivery plans of government, existing structures or economic, social and cultural capabilities of service delivery or society.

This is particularly true for what has become known as Information Communications Technologies (ICT) where incremental appropriation has in point of fact increased inequity right across the world. Whilst it is patently obvious that no substantive progress against inequity can now be made without effective use of ICT, it has been clearly demonstrated that the mere provision of physical access within existing structures in the absence of well thought out plans for social, cultural and economic appropriation to impact real needs at the societal level has failed to adequately address inequity. The over emphasis on technological capability, reductionist research and treating ICT as "a mere tool" has placed South Africa on downward sliding trajectory of "e-readiness" [61] which is severely affecting national standing for investment, development , continental impact, equity, job creation, innovation (national, community and individual) and global competiveness. South Africa has dropped from 47th position in 2007 to 72nd position in 2012. This is obviously a critical matter that requires a national approach beyond current processes.

What current efforts fail to realise is that the social appropriation of ICT for local benefit is not only necessary for an "informed customer" base for business, it is in fact a life changing potential for individual prosperity, self-reliance and participatory capability growth. Further, it must be clearly

[60] See Attachment I

[61] See Attachment II for summary of South Africa's position; references - the WEF Global Information Technology Report 2011-2012. Dutta (INSEAD) and Mia (WEF) *The Digital Inclusion Index*, MapleCroft, UK, 2011.

recognised that ICT is not a harmless technology as it has the capacity to homogenise culture, socio-economic approach, norms and attitudes in ways that are alien to African cultures and that are proving to be inadequate in many places around the world. In other words it can be the modern equivalent of alien plants introduced into South Africa and have been now found to be harmful and difficult to control or eradicate. It is impossible and clearly not in South Africa's interests to impede the adoption of ICT.

However, it is obviously in South Africa's interests to recognise that the appropriation of the technology within a "western" mind-set alone is not in its interests because ICT's natural business tendency is to aggregate in economies of scale beyond national and local interests. South Africa should harness the technology in ways that valorises South Africa's culture, independence, social identity, socio-economic prosperity, innovation, creativity, employment opportunities, global competitiveness and continental position. It must develop a sound approach to the social appropriation of ICT for local benefit. Such an approach clearly puts emphasis on developing social capacity and social astuteness to make use of ICT in ways that suit local needs and develop better understanding of appropriating the technology to increase cohesive approaches to self-reliance.
To achieve this, Governments need to establish a formal multi-stakeholder aggregation and collaboration process to coordinate effort, develop knowledge, aptitude and astuteness at the local level. Their aim would be to deliver socio-economic and cultural appropriation of ICT for innovative job creation, community cohesion and participative approaches to service delivery. Universities and Tertiary Education as places intended for thought leadership need to be co-opted into to establishing independent spaces for this collaborative effort for Government, Business, Education, Civil Society and Organised Labour to create knowledge spaces. These knowledge creation spaces can be harnessed for the development and understanding of societal intelligence, astuteness and aptitude suited to the South African "Information Society and Knowledge Economies" in ways that make sense in dealing with inequity, providing continental leadership and increasing global competitiveness.

Such a process requires a mirror policy development function at the national level which can harness the best talent across all KSPs from within and outside of the country. This policy coordination function is required to provide the necessary leadership for line Departments (National, Provincial and Local), State Owned Enterprises, Tertiary Education and Training, industry, business, donor bodies/countries and the international development agencies to provide the integration and aggregation frameworks for impacting the national strategic goals (including the MTSF, NDP & HRDC) through the socio-economic and cultural appropriation of ICT for local benefit. Such an effort is required to develop, implement and evaluate coordinated policies to ensure that the adoption of ICT does not cause increased inequity. This joint approach of formal linked structures at both high level and the local coordination level across stakeholder groups is required for effective evidenced based policy development, delivery and evaluation for complex matters such as e-readiness. Further, it has the potential to overcome the barriers of "silos" and embedded hierarchies within Government to deliver an integrated response and be more responsive to global changes identified by The Presidency's Department of Monitoring and Evaluation and highlighted as key issues in the National Development Plan -2030.

2. Global Trends

Current trends in the impact of ICT deployment demonstrate that aggregation of both supply and demand into increasingly large economies of scale and lost leader time frames across much of business, education and government service delivery are well beyond the capacity of traditional concepts of market competition within nation states to operate in the national interest.
Key global trends include:

1. 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.

2. ICT development is converging, becoming more mobile, more affordable and more accessible in ways that suit developmental agendas for many countries.
3. There can be no sustainable progress in developing equity of life chances in developmental states without the effective social appropriation of ICT.
4. The rate of ubiquitous development of ICT is moving past the current capacity and attitudes of many societal, organisational and service delivery structures and for effective deployment and adoption.
5. In poignant contrast, the 2012 Global e-Readiness Index highlights South Africa's falling position in relation to other developmental states.

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 across much of society. These impacts are likely to be greatest in places where there are existing large equity gaps.
All analysis of the threats and opportunities afforded by the necessary deployment of ICT points to the need for formal mechanisms for collaboration across the stakeholder groups; organised Business, Government, Education, Community and organised Labour – [KSPs and sometimes known as the quadruple helix approach].

Only a national approach built on effective collaboration across and within the stakeholder groups has the potential to address the immediate and future needs of South Africa in an emerging world pervasively impacted by ICT across all spheres of life. But to be successful, such an effort needs to understand and be responsive to international trends, stakeholder needs, and the developmental agenda and be demonstrably aligned with the National strategies (including the NDP, HRDC, the STI Review, the Distance Education (DRAFT) Policy, NEPAD etc.) in ways that best position South Africa in a continental context.

3. The e-Skills Institute (eSI)

The e-Skills Institute (e-SI) was formed by the national Department of Communications (DoC), following the 2007 recommendations of the Presidential International Advisory Council (PIAC) on the national structural theme of Information Society and Development (ISAD). The shortage of ICT-related skills (e-skills) was identified as a serious problem and the DoC was mandated to drive the national e-skills agenda through its e-Skills Institute. The e-Skills Institute engaged stakeholders from government, business, education, civil society and organised labour. This process led to the national e-Skills Summit in July 2010, the development of the National e-Skills Plan of Action (NeSPA) and a range of implementation activities since 2010. The e-Skills Institute plans to conduct biennial e-Skills Summits involving local, national and international thought leaders across all KSPs to coordinate, measure, evaluate and plan e-Skills efforts across South Africa.
As a national catalyst it aims to help:

- Position South Africa to increase its global competitiveness
- Provide the base for increasing equitable prosperity in South African society
- Grow the human resource e-skills base for South Africa, and
- Embed technology into people's lives.

The e-SI's will achieve its aims through:

- Evidence- based research
- A monitoring and evaluation framework
- Teaching and learning; and
- Innovation

and is based on the core values of:

- Responsiveness
- Enabling the capacity of emerging talent

- Collaboration
- Innovation
- Developmental approaches

The e-Skills Institute has established a substantive formalised multi-stakeholder collaborative network involving partners across Government, Business, Government agencies and SOC's, global development partners and agencies, continental and international partners, community, organised labour and education (Universities, FET colleges and Schools – public and private).

In South Africa the e-Skills Institute has established six (6) Provincial e-Skills Knowledge Production and Coordination Co-Labs in association with local universities to coordinate effort across all stakeholder groups within each Province and to provide an operational platform to engage all KSPs and international development agencies (KGDA) across Africa and internationally. This network will coordinate and lead a national effort generally and within emerging key theme areas based on collectives of excellence.

4. The e-SI Value Proposition

4.1. The position of the e-SI approach

- The e-Skills Institute has been formally established by Government as a national catalyst and responsive change agent which impacts national priorities within the context of a global information society and knowledge-based economy.
- With its initial formation within with the DoC the e-Skills Institute has direct access to influence national departments on the usage of ICTs in national plans and programmes to promote growth of the human resource e-skills base in South Africa.
- With its established links with all relevant KSPs, the e-Skills Institute's Curriculum Framework responds to new market needs and demands in a coordinated environment with higher education institutions.
- The e-skills Institute's research facilities provide a focus for continuous research in a cross disciplinary manner to concentrate on new ways to embed technology into people's lives to improve business opportunities, access to government services and social cohesion.
- The e-Skills Institute has a proactive approach to environmental scanning in a rapidly changing landscape through its national platform that can more adequately assess gaps, overlaps and opportunities for collaborative approaches.

4.2. The position of the e-Skills distributed network - Knowledge Production and Coordination Co-Labs

The e-Skills Institute's distributed Provincial network of Knowledge Production and Coordination Co-Labs based at Universities provides:-

- A positive engagement with multi-stakeholder groups (locally, provincially and nationally) represented by both leaders and project managers across all relevant KSPs. These can bring to bear context, praxis and resource networks to existing programme delivery in a subject matter that by its very nature is multidisciplinary and multi-layered.
- Links to University networks within South Africa and across the world that can help evaluate case study approaches, provide post graduate research capacity and internships and provide new approaches to skilling existing resources in ways that are more responsive to emerging trends and technological development.
- The means to increase the size of the national and international opportunity within a "Government recognised", "business credible" and integrated framework that is responsive to new deployment and delivery approaches.

- A collective energy for developing appropriate methodologies applicable to a range of markets in developmental states, whilst also providing a base for a collaborative approach towards these markets.
- A useful network across all relevant KSPs and international development agencies (KGDAs) for pedagogy, research, innovation, policy development in a cross disciplinary area that has been highlighted by all evaluations of limits to growth, sustainability, equity, global competitiveness

4.3. Position of the e-SI's National Research Network for e-Skills (ResNeS)

- The e-SI has established the National Research Network for e-Skills (ResNeS) to provide a professional platform for multi-stakeholder research collaborations to support the national e-skills drive aimed at e-skilling South Africa for equitable prosperity and global competitiveness.
- ReSNeS is a formal evolving network body of researchers across the sectors of all relevant KSPs and other national and international role players that will provide the necessary multi-disciplinary research base for the e-Skills initiative which goes to the heart of building South Africa's capacity.
- It is both self-evident and well documented that existing research approaches have not been able to address the huge capacity building needs of South Africa in adequately preparing it to appropriate the current and emerging communications technologies into sustainable and visible local benefit within a developmental context.
- The fragmented approach by traditional disciplinary research and their within paradigm extensions to socio-economic applications have not been able to provide useful interventions into addressing the huge capacity gap that South Africa now faces in adequately preparing itself for the emerging Information Society and Knowledge Economies. As stated above this matter goes to the very heart of South Africa being able to deal with every socio-economic matter it faces.
- ResNeS will commence the process of building a relevant taxonomy, providing a coordinating framework, proactively aligning e-capacity research to national priorities, business needs, and emerging technology capabilities and establishing a sound credible and active research collaboration body.
- It will undertake the important matter of aggregating relevant existing data and in establishing a process for on-going data collection that is more closely aligned to the needs of a broad based national approach capacity building for South Africa's developmental needs in the Information Society and Knowledge Economies.
- Through these processes ResNeS will be able to inform and influence e-capacity building policy based on evidence based research. Further it will be able to identify South Africa's needs within its own cultural identity which is more complex and different to the existing "Western" paradigm.

4.4. Opportunities that e-SI provides in building South Africa's e-Skills capacity

The collaborative, catalytic and coordinating approach of the e-Skills Institute provides new opportunities to

- Refine policy settings within a more integrated approach to a subject matter that is innovating at rates that are difficult for government bodies to respond to within their planning, structural and accountability frameworks.
- Test new approaches to service delivery within a safe environment that has broad technical, praxis and policy support across business, service delivery agencies, education and local community.
- Develop and test new products and services in protected environments in the e-Skills Knowledge Production and Coordination Co-Labs and access to academic case study

approaches with University researchers and students (under graduate and post graduate) Government managers/programmes and business knowledge and experience.

- Establish new pedagogical/research approaches to undergraduate, short courses, post graduate courses and evidence based research aligned to current needs and future trends.
- Develop a formal process to more effectively engage with government from a collective stakeholder stance around praxis, evaluation, policy development, research needs new approaches to vertically and horizontally integrated efforts to national skills development for the Information Society.
- Establish and embed innovative and creative approaches to the development of capacity to address inequity, build increasing self-reliance, create jobs in the information society, socially appropriate ICT to improve productivity in existing sectors, apply ICT to health, education & lifelong learning, crime reduction, social responsibility, rural development and service delivery

5. e-SI Stakeholder value propositions

As indicated above the specific value propositions for individual stakeholders will varying upon individual need. However, there are a number of key principles that will impact the value proposition for all partners.
For example from a **business perspective** it can provide

1. Introductions to new networks across all relevant KSPs within a "government recognised" and "business credible" integrated framework that is responsive to new deployment and delivery approaches.
2. A collective energy for developing appropriate methodologies applicable to a range of markets in developmental states, whilst also providing a base for a collaborative approach towards these markets.
3. Access to current applications and innovation across the broad international base of collaborators and their established linking networks.
4. The opportunity to develop and test new products and services within a safe independent environment which is supported by best available skills, knowledge and resources.
5. Access to new approaches for pedagogy and tailored skills development that can scale opportunity.
6. Better analysis of business focus, processes and scalability from independent, collaborative and current knowledge approaches applied within a case study methodology.

From a **Government agency perspective**, it can provide

1. A better and more focussed opportunity to be kept abreast of trends in technology application, service delivery, policy development, and evaluation and monitoring.
2. A platform that can more adequately assess gaps, overlaps and opportunities for collaborative approaches to service delivery.
3. A better opportunity to determine impact of existing programmes in a more holistic sense.
4. Opportunities to refine policy settings within a more integrated approach to a subject matter that is innovating at rates that are difficult for government service delivery bodies to respond to within their planning, structural and accountability frameworks.
5. Better links to University networks within South Africa and internationally that can help develop and evaluate case study approaches, provide post graduate research capacity and internships and provide new approaches to skilling existing resources that are more responsive to emerging trends.
6. Opportunity to test new approaches in a broader and integrated environment

From a **FET College perspective** it can provide

1. A sound platform to consider pedagogy that is aligned to business, industry, government and societal needs.
2. A means to up-skill teachers, instructors and management staff.
3. A platform to engage students in integrated "real life" experiences that improves both learning and employability.
4. A capacity to respond to issues of scalability as they arise.
5. A collaborative network that may facilitate new market opportunities in other jurisdictions.
6. Alignment to a network of business leaders for two-way interaction for alignment, internships and employment.
7. Closer access to technology foresight trends.
8. Increased opportunities to embed alignments with existing successful training providers and programmes e.g. Cisco Network Academies, Multi-media, etc.

From a **University perspective** it can provide

1. The opportunity for new pedagogical approaches to undergraduate, short courses, post graduate courses and research
2. An entity which can attract external funding programmes for profile international sabbaticals and business placements and internships.
3. The opportunity to establish funded chairs in e-Skills related areas
4. The opportunity to establish centres of excellence for software development, new technology hardware, social appropriation, policy development, governance processes for new Information Society approaches relevant to developmental states.
5. A base to aggregate data across all relevant KSPs within South Africa and across the world for mega data analysis on uptake, diffusion, social appropriation, service delivery and the like within different socio-economic, cultural and geographic settings.
6. The opportunity to engage with, test and develop new forms of education, learning and skills development based on network experiences and cutting edge global trends in a cross disciplinary area that has been prioritised all evaluations of limits to national growth, sustainability, equity and global competitiveness.
7. An integrated platform to more effectively engages with large international research funding agencies.
8. A formal process to more effectively engage with government from a collective stakeholder stance on matters of praxis, evaluation, policy development and research needs for vertically and horizontally integrated efforts to national skills development for the Information Society.

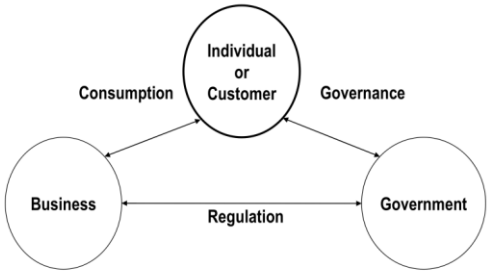
From a **State Owned Company (SOC) perspective** it can

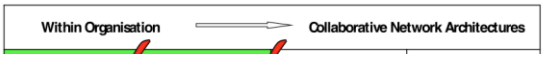
1. Provide all of the benefits itemised under the business and government opportunity examples listed above
2. Provide a new mechanism to connect with existing and new clients
3. Help develop an aggregation platform for new approaches, services, programmes and client loyalty programmes.
4. Develop new mechanisms to demonstrate collaborative approaches to addressing national strategic objectives
5. Demonstrate an integrated and coordinated approach to e-skilling South Africa.
6. Provide an opportunity to fund well developed, sustainable and widely supported projects and programmes.
7. Provide a means to more carefully target service offerings with in a wider collaborative approach.

ATTACHMENT I

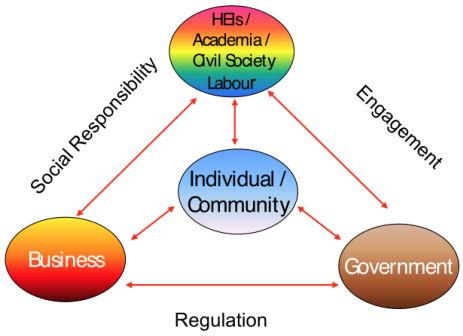
A diagrammatic view of governance structures for "Doing to", "Doing for" and "Doing with"

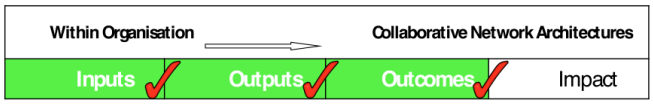
The Dictated Way...Doing to



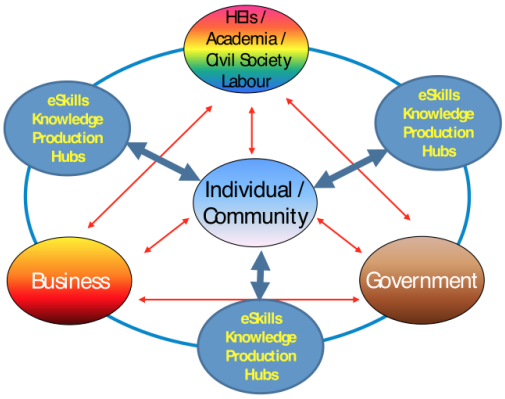


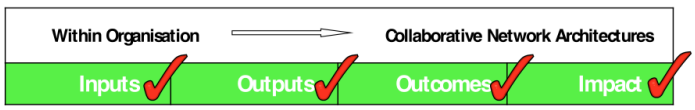
Out Dated Way....Doing For





The New Way....Doing with





ATTACHMENT II

A summary overview of South Africa's e-readiness positioning and limitations

South Africa's e-readiness

World Economic Forum (WEF)

Global Information Technology Report – Dutta & Mia

Year	Place	Countries
2012	72	142
2011	61	138
2010	62	133
2009	52	134
2008	51	127
2007	47	122

Now behind countries such as Mongolia, Brazil, Uruguay, Puerto Rica, Costa Rica, Mauritius

World Economic forum – Networked readiness report 2012 – 142 countries

- South Africa 72 place overall
  - 23rd regulatory environment ✓
  - 50th entrepreneurship & innovation ✓
  - 94th basic skills
  - 76th rates of usage
  - 34th business integration ✓
  - 59th economic impacts
  - 98th social impacts

Upgrading skills at all levels of society - biggest issue

Appendix C: ITU Global ICT Forum on Human Capacity Development Report

GLOBAL ICT FORUM ON HUMAN CAPACITY DEVELOPMENT

22 – 25 October 2012

CAPE TOWN, SOUTH AFRICA

DIGITAL INCLUSION:TRANSITION FROM ANALOGUE TO DIGITAL BROADCASTING

GLOBAL ICT FORUM REPORT

Document: GLOBAL ICT FORUM 25 October 2012
Original: English

FORUM REPORT

Overview and purpose of this Report

1.The Global ICT Forum on Human Capacity is a biennial global conference dedicated to building human capabilities and skills that are ready for the digital economy and digital society. The theme of the 2012 ICT Forum was "Digital Inclusion: Transition from analogue to digital broadcasting". The event was held in Cape Town, South Africa, at the Cape Sun Southern Sun hotel. The Forum was co-organised with the Department of Communications of the Republic of South Africa and its e-Skills Institute, together with Telkom South Africa. The Forum was held jointly with the 2nd South African national e-Skills Summit 2012. The e-Skills Institute is a Government initiative under the Department of Communications, aiming to harness the potential of ICTs in society to address the major socio-economic challenges, which South Africa faces, in delivering equitable prosperity and global competitiveness. The e-Skills Institute provides an enabling environment for a coordinated response to the challenges posed by the rapidly expanding capacity, mobility, convergence and affordability of new ICTs and their impact on the country's competitive position.

2.For this reason, there was complementarity between the goals of the e-Skills Summit 2012 and the Global ICT Forum, as the digital e-skills debate and endeavour was seen within the broader context of the digital inclusion agenda. The Forum's agenda was therefore designed with the Skills Summit 2012 as an integral part.

3.Taking into consideration the Forum's theme, as well as the interests of all the event organisers, it was agreed that the morning sessions would focus on the main theme of analogue to digital broadcasting, while the afternoon sessions would deal with other digital economy skills related issues in two breakaway sessions. One of the sessions would discuss topics aligned to the e-Skills

Summit 2012 agenda, though those discussions were open to the other delegates. Speakers were drawn from different spheres of activity, representing high-level officials, policymakers, regulators, non-governmental organisations, academia and private sector. Expected Forum's outcomes were clear programs of action at a global level on how nations can prepare their human capital to leverage on the digital broadcasting in particular, but beyond that, how they can develop national e-skills capabilities to leverage a digital economy. Outcomes were therefore expected to be targeted at people as recipients of training; policymakers in terms of initiating the right policy frameworks, as well as other stakeholders in the private and public sector.

There were approximately 282 delegates from 56 countries, participating in the Forum. This Forum report is a summary of the deliberations that took place from 22-25 October 2012. Full documentation of the Global ICT Forum, including the final agenda and all presentations, is available on the website at http://academy.itu.int. The Forum had a live streaming and feedback on Twitter.

GLOBAL ICT FORUM ON HUMAN CAPACITY DEVELOPMENT 2012: REPORT

The International Telecommunication Union (ITU) believes that full social and economic development can only be achieved through digital inclusion, when all the citizens of the world are able to access and fully utilise the vast life-changing services of a digital economy. While infrastructure and access are important constraints that need to be overcome upfront, it is the human capabilities that are critical for leveraging the benefits of this infrastructure through maximising the use of the services provided by the digital technologies. The transition from analogue to digital broadcasting is a giant leap in the direction of the digital economy and its challenges are worthy of attention. The Forum looked at the technological, policy, and regulatory imperatives of the digital era in light of the significance of the global deadlines for migrating to digital broadcasting. It addressed the challenges this poses for nations in terms of human capacity development preparedness.

The objective of the Forum was to discuss the capacity building challenges of transitioning to digital broadcasting and address how these challenges can be met. It also highlighted the huge opportunities of a digital economy and how these can be a source of empowerment for people. Within the sphere of capacity building, it explored the learning opportunities available for distance learning through mobile based platforms and devices, and how these can transform the way we access information and learning. The Forum was also an opportunity for countries and organisations to learn from the fascinating e-Skills initiative of South Africa.

Pre-conference, Monday, 22 October

The whole day of Monday, 22 October was a pre-conference entitled "Unpacking the migration issues". The purpose of this pre-conference was to lift the curtain on the understanding of the analogue to digital transition process and prepare the audience for the main conference starting on 23 October. Other topics discussed at the pre-conference covered human capital development, learning systems, digital society development and national e-skilling strategies.

Official Opening Ceremony, Tuesday, 23 October

The Opening Ceremony took place on Tuesday, 23 October and set the tone for structured, inclusive dialogues for the following days. The Forum's opening was addressed by Ms Charmaine Houvet, Group Executive, Telkom Corporate Affairs, South Africa, H.E. Mr Walter Folotalu, Minister of Communication and Aviation, Solomon Islands, Mr Brahima Sanou, Director, Telecommunication Development Bureau, ITU, and Deputy Minister of Communications of the Republic of South Africa H.E. Ms Stella Ndabeni-Abrahams, who opened the Forum and also delivered the keynote address. In her opening address, H.E. Ms Ndabeni-Abrahams highlighted that the Global ICT Forum, which encompasses the second e-Skills Summit of South Africa, not only addresses the aims of the ITU but

also interacts with South Africa and other developmental states. Mr Sanou explained the choice for the topic, noting the looming deadline of June 2015 for transitioning to digital broadcasting, and the technological significance of this transition for the digital economy agenda, as compelling reasons. He said that attention to the human capacity development implications of these technological milestones reminds us that people are at the centre of all changes.

He emphasised the importance of education and training as ways of acquiring knowledge, adding that there need to keep exploit the growing power of mobile technology for learning.

High Level Segment, Tuesday, 23 October

The High-Level Segment comprised Ministers, Director-Generals, private sector executives, UN and ITU representatives who addressed the topic of transition from analogue to digital broadcasting from the global, regional, policy and regulatory, private sector, and ITU perspectives. The High-Level Segment had the following panellists:

- H.E. Mr Walter Folotalu, Minister of Communication and Aviation, Solomon Islands
- H.E. Mr Mohammad Al-Taani, Chairman of the Board of Commissioners/ Chief Executive Officer of the Telecommunications Regulatory Commission (TRC), Jordan
- Mr Brahima Sanou, Director, Telecommunication Development Bureau, ITU
- Mr Pedro Mendes de Carvalho, Director General, National Communications Regulatory
- Authority (INACOM), Angola
- Ms Elizabeth Migwalla, Senior Director Government Affairs, Qualcomm, South Africa
- Dr Harold Wesso, Deputy Director General, e-Skills Institute, Department of Communications, South Africa.

The session was moderated by Dr Cosmas Zavazava, Chief of Department, Project Support and Knowledge Management, BDT, ITU.
The main discussion was concentrated around the questions of the transition process, capacity building, new opportunities, role of the governments and ITU. During the discussions, global technology trends and their impact on the developmental agenda like transition from analogue to digital broadcasting were presented. Policies, views and perspectives of all actors and stakeholders in the telecommunications/ICT sectors were highlighted.

It was pointed out that ITU is giving special attention to transitioning from analogue to digital broadcasting and the importance of prioritizing capacity building development to empower people in the knowledge society. The main challenge of this transition process is to bring all stakeholders together and get a common vision of the process. It was stressed that human capacity building development is an ITU priority for all regions and ITU is focused on training for sustainable, social and economic development. ITU has provided capacity building through Centers of Excellence for more than 10 years. To streamline its capacity building activities, ITU created the ITU Academy as a platform to allow the exchange of information and provide training opportunities on ICT and Telecommunications for all countries. The importance of focusing on e-skills and on the development of people for entrepreneurship in the information society was highlighted. It was also stressed during the session that some supportive attitudes should be adopted to facilitate the transition and beat the deadline of 2015. Consequently, it is important to take into account legal and economic restrictions.
This session also highlighted different aspects and approaches that countries could consider when developing their national broadcasting strategies. It was noted that there is a need for a political and strategic vision, as well as a long-term plan, as the people in the country will have to live and adapt to the technology for many years to come. It was emphasized that a clear vision, close collaboration amongst national agencies, good coordination and a shared understanding of why this is being done, as well as strong national leadership are needed.

The ITU Academy was officially launched. The Director stated that the primary objective of the ITU Academy is to harmonize and integrate all existing ITU training services and to extend the current portfolio of training programs. The Academy offers a wide and growing range of general and specialized courses on all aspects of telecommunications in Radio communication, Telecommunication Standardization and Telecommunication Development., delivered both face-to-face, as well as online through the ITU Academy portal. At the same time, current and relevant training material will be developed and stored on the portal for access and use by members. Mr Sanou called on the member countries and all stakeholders to join hands with the ITU in partnership to strengthen the ITU Academy.

Parallel Sessions, Tuesday, 23 October

Four parallel sessions took place in the afternoon. The first parallel session (Session I) dealt with the theme of managing change in the technological environment. This session looked at the change issues in the transition to digital broadcasting, identifying the key success factors for competitive advantage in a new environment and developing capabilities for a digital economy. Presenters looked at the role of human capital in managing change in a digital environment, the type of workforce that will characterise this environment, the role of leadership in the digital age and their impact.

Session II was dedicated to the coordination of, and building the e-skills capacity to respond to the country's national developmental strategies and policies. Initial discussions focused on the e-skills for equitable development and global competiveness. It is important to go beyond skills for shaping programmes that are able to promote e-readiness and social and economic inclusion. For the promotion of this process it is necessary to have the participation of people in the society mainly considering the exiting gap among different social groups.

It was highlighted that access in terms of ICTs is still a problem in developing countries and special attention is required to people in remote areas. It is also important to draw attention to children and their relation with ICTs as tools. It was noted that there are a number of initiatives addressing skill issues; however, there is a lack of coordination to get together the stakeholders for the promotion of e-skills in a collaborative manner.

Human capital development in an m-education environment was presented within Session III. The focus of the session was on e-education and m-education, its challenges and perspectives. It was illustrated how mobile technology can support e-education. In general, m-learning can assist in solving problems in education in Africa by addressing some of the many challenges that exist including accessibility and quality. It was also stated explicitly that e-learning can be significantly cheaper than other methods of education.

Problems within the context of m-education were discussed. One of the main challenges in ensuring effective learning in an e-education environment, is related to access to a consistent on-line platform to enable students to access the educational provider. In addition, because 'e-learning' often requires a home-based internet broadband subscription, the high cost of access can be a barrier to learning. There are also challenges related to inadequate infrastructure such as electricity and local loop. There is also the issue of lack of technical skills that are considered inadequate to support high bandwidth intensive applications.

After the presentations and debates participants came to the conclusion that while there is a need to promote access to existing globally available and appropriate content, there is still a need to stimulate the flow of new electronic content that promotes e-learning.

Session IV was an interactive session, which was built as an exchange of experiences on the items around each speaker. The objective was to present the role of e-skills capacity development on

generating new job opportunities within an innovative and creative approach in rural and peri-urban marginalized areas. The role of the governments in supporting innovation, creativity and social astuteness among its citizens in an e-context was discussed. This role should include four key components such as policy, product/solution, a reflection on local context and partnership. It was stressed that to promote innovation and creative industries within a developmental state context, a joint vision and mission between private sector, academia, civil society and organised labour should be provided. The role of ICTs to enhance the general skills levels of young unemployed and citizens with insufficient formal education was explored in the discussion. The components and role of e-skills in the mobile eco-system was widely presented.

Plenary Session V, Wednesday, 24 October

This Plenary session carried over from the High Level Segment and dealt with its theme under the title "Unmasking the transition". This session analysed the policy, regulatory, technical and human capacity building implications of the transition from analogue to digital broadcasting. It also explored the roadmap to the digital broadcasting, and covered the new ITU Digital Dividend Report. The session also highlighted the opportunities that the transition will open for businesses and the implications of the transition for consumers.

This session started with the ITU presentation on the Digital Dividend Report: Insights for Spectrum Management and the main issues raised in the Report. The Report takes into consideration, among other things, the potential use of the digital dividend and its availability for broadcasting and other services.

It was stressed by ITU that for achieving a successful transition to digital terrestrial television, it is necessary to consider legal and regulatory measures, as well as harmonized allocation of the digital dividend spectrum and coordination among all relevant stakeholders. In addition, the opportunities that the transition will open and how nations should be dealing with it in terms of building human capacities were discussed. Policy, regulatory, technical and human capacity building implications were also covered. Part of the discussion was focused on the post regulatory regime of broadcasting distribution sector and status of digitalization in Pakistan. This was a case study presentation, covering the mandate of Authority, licensing regime and status, cable TV penetration in the country and digitization of distribution networks.

Parallel Sessions, Wednesday, 24 October

Four parallel sessions took place in the afternoon. Session VI, which was dedicated to the ICTs for capacity building gathered under its umbrella e-Learning trends, strategies and perspectives and innovative uses of mobile devices for knowledge dissemination. Participants were able to learn about projects receiving world recognition. This session provided remarkable case studies of organisations that have used mobile devices for educational purposes
=The first part of the session explored the value of ICTs and learning in developing countries, and the value proposition of mobile learning. Participants had the opportunity to see the future of mobile learning and how the connected world would be in 2020. The situation with mHealth was explored in the 50 poorest countries prioritised by the UN Commission for Life-Saving Commodities.

In the second part of the session was a case study from Nigeria, which showed how Nigeria is trying to provide ICT literacy to its population in a presentation on "Building ICT literacy for transition to knowledge based economy – the NCC-DBI experience". Some statistics regarding the ICT in Nigeria (mobile penetration is 55, 78%, fixed is 0.48, and internet penetration is 2.3%) were provided.

The presentation on ATMs of knowledge showed the significant contribution to the education in Africa that can be made by offering these ATMs as a sustainable and scalable solution. Innovative

ideas on disseminating knowledge to communities through installation of ATM's in convenient community centres for downloading material by people from these public information kiosks were shared and discussed.

A presentation on "Using social networks and mobiles as tools for youth empowerment: the Young Africa Alive project" demonstrated how mobile technology can create disruptive, life enhancing services for the majority world. The project's work has touched more than 80 million people in 17 countries. Young Africa Alive project provides an educational and informational platform for young people about sexual and reproductive health, which can help to decrease the level of AIDS. Another project, "Ummeli", helps to create a profile builder and job board for the youth, in a country where most job seekers will never achieve employment in the formal sector.

Nokia gave a presentation entitled "Nokia innovation related to the Nokia Life-Life and Livelihood improvement through knowledge access at the Bottom of the Pyramid-76 million and growing…". This is a presentation of an experience shared about a veritable innovation by Nokia to improve the lives of poor people around the world. With this experience, Nokia provides low price mobiles for agriculture information, for example, and covers 76 million of persons.

During the last presentation a pedagogic platform for learning and digitalization of training school books was presented.

Session VII was dedicated to ICTs and e-Skills within a development context: strategies to design a multi-stakeholder collaborative network to e-skill a nation. This session consisted of two parts, which were organised as a panel discussion.

Part of the session, which was dedicated to the building a dynamic information structure highlighted the role of e-Skills Institute in achieving developmental goals; its challenges, risks, and drawbacks to promote growth. Embedding technology for effective service delivery and a competency framework were presented.

In addition, the session offered a unique opportunity to discover and compare lessons from different regions: Europe, Asia-Pacific, Latin America, Middle East and Africa. During the case study from Oman, participants got acquainted with initiatives and services that are designed and created to improve the efficiency of government services, enhance the activities of businesses and empower individuals with skills and knowledge to meet society's needs and expectations and to direct Oman towards becoming a sustainable Knowledge-based economy.

The Asia –Pacific perspective on the strategies to design a multi-stakeholder collaborative network to e-skill a nation was given also.

During the case study from Europe, some important questions were raised. The presenter explained where the knowledge society begins and how the Knowledge Economy Programme works.

These regional examples demonstrated the need for stronger collaboration between governments, academia, consumers and other stakeholders to create a stable learning platform.

Parallel sessions, Thursday, 25 October

The final day of the Forum provided two parallel sessions. Session VIII, which was dedicated to the role of academia and training providers in building human capacity in digital environment, discussed the role of academia for content development and curriculum design. Professors and executives gave their view on using cloud computing and its implications for educational institutions.

The workplace development was presented as a dimension of the integrated skills supply model. In addition, participants had a presentation on the role of the UUM Eminent Management University in Malaysia as a Rural Campus in building regional and national capacity with a case study for Malaysia. The presenter shared strategies to promote the human capacity building process. Moreover, strategies for building a sustainable human capacity development training centre were highlighted.

The special session for South Africa was dedicated to the drafting of the national e-Skills plan of Action (NeSPA 2013). During this session, evaluation of the progress of the 2010 NeSPA document was conducted. All the lessons learned during the first two years of NeSPA, aligning current initiatives, and identifying gaps to impact the South African national strategic developmental goals were presented.

Forum Outcomes, Action Plan and Final Recommendations

The Outcomes, Action Plan and Recommendations are drawn from the discussions of the various sessions as well as documents, presentations and contributions made during the plenary sessions.

This final session addressed lessons learned from different countries on their approach to enhance their citizens' capacity, for using appropriate new technologies (broadband, digital TV, etc.). Participants discussed the difficulties and challenges countries are facing in the context of the transition from analogue to digital broadcasting, and ways to overcome these difficulties.

It was pointed out that almost in every country the main problems are high unemployment, high demand for e-skills, teaching and learning. Consequently, there is a need for:

- Aggregation, coordination of demand and supply for building e-skills capacity
- Infrastructure
- Application development and local digital content and knowledge creation
- Development of a matching training delivery capability

The Forum has produced some recommendations and takeaways:

1. The Forum notes the important role that a digital economy plays for the social and economic development of people and societies.
2. The Forum acknowledges that the transition from analogue to digital broadcasting is a major milestone towards a digital economy and digital society.
3. The Forum considers it essential to have digital inclusion for all people and communities.
4. Human capital building is central to the attainment of a digital-inclusive society.
5. The Forum notes that to achieve a digitally inclusive society requires strong and deliberate interventions by all stakeholders, led by the state players, to put in place all-inclusive e-skills programmes at a national level. This intervention must be supported by the right set of policies.
6. The Forum stresses the need for strong support to governments in creating policy frameworks, which will promote e-Skills agendas. In addition, ways of assisting nations to develop and implement national e-Skills agendas with clear implementation timelines should be established. The importance of promoting the development of local content that can be used on digital platforms was highlighted.
7. The Forum notes the need to encourage the development of people- friendly digital broadcasting policies (for example subsidising the prices of the equipment for transition). It was stated that successful transition from analogue to digital broadcasting requires:
    - Strong leadership of the government
    - Firm decision of analogue TV switch-over date

- Close cooperation of Regulators and market parties
- Clear and timely regulatory framework
- Adequate information and assistance to viewers

8. The Forum encourages leveraging new tools available in the digital economy to promote knowledge dissemination and learning. To this end, the role of mobile devices is highlighted as a way of bridging the digital divide and bridging knowledge to some remote areas.
9. The Forum urges the creation of local and appropriate content to be disseminated on the new digital broadcasting platform to ensure relevance to local environments.
10. Within the context of national e-Skills Agenda for South Africa 2013, their Forum takes note of the achievements made in promoting the e-Skills agenda in South Africa, and highlighted the following points:

    - Clear alignment within South African government development strategies
    - Internationally-recognized South African coordinating platform that engages all relevant KSPs in addressing the lack of e-skills
    - Legitimate platform to increase awareness of current practices and development of e-skills capacity in South Africa and across the African continent
    - Roadmap to advance e-skills development in South Africa for equitable and global competitiveness
    - The Forum urges other countries to emulate the example set in South Africa and implement similar e-skills programs for their people.

Recommendations:

1. The Forum urges ITU to support governments in developing national e-skills agendas
2. ITU should work with like-minded organisations to promote the use of mobile based devices for knowledge dissemination, learning and development
3. ITU should organise follow-up workshops on a regional basis and assist countries to prepare their human capital for transition from analogue to digital broadcasting, according to their respective needs.

Appendix D: Structure of e-Skills Aggregation Framework

In order to provide useful, accurate and timely information for an effective decision making, the e-Skills Aggregation Framework might[62] **inter alia** contain the following elements:

1. **Stakeholders**:
    a. Stakeholder's Name and Group (e.g. Business, Government, Education, Civil Society, Organised Labour, International Development Partners)
    b. Other partners involved
2. **Name of e-Skills Programme/Project**
3. **Objective of the Programme/Project**
4. **Focus Area** (i.e. innovation, infrastructure, e-skills capacity development, research)
5. **Starting and Finishing Year**
6. **For e-Skills development**:
    a. sourced (if yes, the name of the source),
    b. new or
    c. modification of curriculum
7. **Geographical information**:
    a. Province
    b. Municipal area
    c. Location within the Municipal area
8. **Targeted group** (e.g. unemployed graduates, e-entrepreneurs, information/knowledge workers, communities, e- professionals and thought leaders)
9. **Anticipated number of people Impacted by the project/programme**
10. **Number of people impacted by the project/programme by the agreed date**
11. **Actual** (final) **number of people Impacted by the project/programme**
12. **Funding details**
13. **Impact assessment**:
    a. If conducted and by whom
    b. Impact results
14. **Identified challenges**
15. **Lessons learned**
16. **Other important information**

[62] This Framework is yet to be discussed by various stakeholders before the final version is produced and implemented.

Appendix E: An overview of the skills development entities of the Department of Communications and the way forward for integration

Skills development for an ICT-enabled world by the Department of Communications is currently carried out by two key institutions namely NEMISA and the e-Skills Institute. Below is a high-level overview of each of these entities and ISSA.

1. ISSA

ISSA was established in 2001 as a directorate in the DoC to deliver appropriately skilled software engineers for the space industry. Students were trained in collaboration with the University of Stellenbosch. The programme was officially terminated in 2005. Since then the remaining staff mainly focused on the development of software applications for Government.

2. NEMISA

NEMISA originated as the Broadcasting School of South Africa, established in 1998. It was established as a non-profit organisation (Section 21 Company) in terms of the Companies Act (1973) in 2001. Its main role was to deliver students with the requisite skills for the broadcasting industry i.e. radio and television. Over the years it added courses in animation and graphic design.

Currently, NEMISA offers 5 MICT SETA accredited courses namely:

- National Certificate: 2D Animation (NQF Level 5)
- National Certificate: 3D Animation and Visual Effects (NQF Level 5)
- National Certificate: Radio Production (NQF Level 5)
- FET Certificate: Design Foundation (NQF Level 4)
- FET Certificate: Film, Television and Video Production Operations (NQF Level 4)

In addition to the above, the Institute responded to two national projects namely (1) National Digital Repository: captures local heritage content in an online environment; and (2) the skilling of employees of local community radio stations. The Institute can accommodate a maximum of 140 students at its campus in Parktown and 60 students at is facility in Franschhoek in the Western Cape. Currently it has 130 registered students. Most of its students (77%) come from three provinces of Gauteng, Limpopo and Mpumalanga.

3. e-SKILLS INSTITUTE

The establishment of the e-Skills Institute (e-SI) was initiated by the Department of Communications, following the 2007 recommendations of the Presidential International Advisory Council (PIAC) on the Information Society and Development (ISAD). The shortage of ICT-related skills (e-skills) was identified as a serious problem and the Department was mandated to drive the national e-skills agenda through its e-SI.

The e-SI engaged stakeholders from government, business, education, civil society and organised labour (KSPs). This process led to the first national e-Skills Summit held in July 2010 and produced the National e-Skills Plan of Action (NeSPA) 2010. Since then a number of activities were implemented and in October 2012 the second e-Skills Summit in collaboration with the International Telecommunications Union and Telkom took place. The key objective of the summit was to evaluate progress of the 2010 NeSPA and develop an updated action plan for the next 24 month (NeSPA 2013). Given its mandate and through its decentralized network architecture in association with six

(6) local universities spread across six (6) provinces, the e-SI during the financial year 2011/12 made the following inroads at a national and international level:

- Increased the number of accredited courses through participating universities that are relevant to new market needs and demands in a coordinated environment (see Annexure I);
- Increased University and FET colleges intake in relevant e-skills aligned to an accepted by industry, government and educational needs;
- Identified Creative Industries (incl. Broadcasting, Digital Media and ICT) as a industries for sustainable employment;
- Established a national e-skills research network focusing on continuous research in cross disciplinary manner to concentrate on new ways to embed technology to improved business opportunities, access to government services and social cohesion;
- A major recognized contributor and aggregator to improving the country's global e-readiness indicator rankings. The e-SI has direct access to influence national departments on the usage of ICTs in national plans and programmes to promote growth of the human resource e-skills base in the country. The e-SI model was endorsed by the International Communications Union (ITU) at the recent national e-Skills Summit 2012.
- Established a proactive approach to environmental scanning in a rapidly changing landscape that can more adequately assess gaps, overlaps and opportunities for collaborative approaches for e-skilling the nation.
- Through its proof of concepts impacted on 4 500 citizens across a wide spectrum of society, from PhD students to individuals in communities.

The table below provides a further analysis of the operations of the three entities in terms of key focus areas that should be pursued by a modern institution of learning. The table shows a very unbalanced picture. NEMISA does not operate at the level of the e-SI in terms of serving as a national catalyst that provides an enabling platform across key national and provincial departments, education, business including the ICT Sector, organised labour, civil society and global developmental partners.

	ISSA	**NEMISA**	**e-SKILLS INSTITUTE**
1. Purpose	Was to deliver electrical and software engineering students and application developers. Operational until 2005.	To deliver students with the requisite skills for the broadcasting industry, i.e. radio and television.	To serve as a national catalyst, facilitator and change agent for the development of e-skills in the country.
2. Governance Structure	Report to Infrastructure unit within DoC	Board of Trustees in Existence; Not-for-Profit Organisation	Branch within the DoC
3. Targeted Community	No longer applicable	Broadcasting sector primarily	Broad users community i.e. individual, community, households, business, government (community-user-practitioner-thought leaders)
4. Service Delivery for National Impact			
4.1. Architecture for multi-stakeholder collaboration (national, continental & international)	No longer applicable	None	Provides a national enabling platform across government, civil society, education, business and global development partners.
4.2. National network for e-skills research (policy development and	Not applicable to their business model	None	Established a national research network for e-skills in the country with

innovation)			representation from government, education, civil society and business.
4.3. e-Skills Teaching and Learning Curriculum Framework	Not applicable to their business model	Limited to the courses being offered	National curriculum working group in place National e-skills curriculum framework drafted.
4.4. Virtual Platform for reach and to build entrepreneurship and employability	Not applicable to their business model	None	Virtual Platform - proof of concept in place. Alignment with USAASA, Department of Rural Development, DBoE, DHET and SALGA.
4.5. Innovation Application Development	Limited historically	None	Three local application development factories established as part of the provincial e-skills knowledge production and coordination hubs to promote local applications development to need.
5. Strategic Alignment to support National Targets	Historically impacted on delivering students for the space programme	Limited impact	DOC, MTSF, HRDSA, NDP, IPAP II, Rural Development Strategy, MDGs and WSIS
6. Funding and Expert Support Sources	DOC	DOC	DOC, global development partners and others

In lieu of the above, there is a strong business case to consolidate and integrate the three entities and all other targeted e-skills interventions of the Department of Communications into a New Single Entity for e-Skilling for an ICT-enabled world and for national impact.

OPERATIONAL ISSUES FOR THE NEW ENTITY

VISION

"Be a recognised national catalyst, facilitator, responsive change agent and thought leader in the development of SA‟s capacity in the optimum utilisation of ICTs for the development of growth of the Knowledge Economy and African continent."

MISSION

The New Single Entity for e-Skilling will:

- Provide a decentralised integrated collaborative architecture across government, business, education and civil society (KSPs)that will better position South Africa for the Information Society and Knowledge Economy (enabling platform);
- Strengthen and support the focus and delivery of e-skills training and accreditation and research within existing service providers aligned to the national strategic goals (focus on gaps) ;
- Provide diversified, unique e-skills education, training programmes and e-skills upliftment across key stakeholder groups (empower users);
- Achieve change by acting as a catalyst to achieve information society goals (aggregation);

- Play a leading role by orchestrating the various existing and new initiatives around e-skills and undertaking an advocacy role in developing citizenry for the Information Society and Knowledge based Economy (leadership through advocacy at all levels);

- Through thought leadership, be an actor and a stimulus for research and innovation (innovation);

- Enable and promote innovation that responds to the developmental needs of the South African society by providing physical facilities for learners, communities and business to exploit new technologies such as smartphones and tablets, develop new local software applications and create new job opportunities (entrepreneurship);

- Ensure that all communities including specific groups (unemployed, elderly, disabled, low-income earners and women) and with a special focus on deep rural, rural and peri-urban based communities are able to leverage from the opportunities and the e-skills virtual network for knowledge production and transfer (e-skills virtual cloud); and
- Work collaboratively to leverage existing capacity and resources and help existing service providers better align to the MTSF 2009 -2014 and NDP 2012(collaboration for impact).

The institution's vision and mission statements can be adapted to environmental influences.

CRITICAL SUCCESS FACTORS

The environmental impacts have been translated into a set of critical success factors for the New Single Entity for e-Skilling which gives an indication of the associated risks. Critical success factors define the goals that the New Single Entity for e-Skilling must achieve in the context of its environmental factors.

- Be recognised as a national development institution by all relevant KSPs responsible for e-skilling for equitable prosperity and global competitiveness within the context of South Africa's emerging Information Society and Knowledge Economy;
- As part of its mandate provide a national oversight role across all relevant KSPs for e-skill interventions within South Africa;
- Better coordinated, invigorated and committed partnerships and collaborations at the local level to deliver against national goals (MTSF 2009 – 2014), NDP 2012 and the MDGs;
- Focused on e-skills research and innovation to improve policy development; service delivery and evaluation;
- Unique permutation of offerings reflecting national developmental needs aimed at increased self-reliance, strengthening of local development and increased skilling for equitable prosperity and global competitiveness; and
- Monitoring of e-skills intervention across stakeholder groupings and more focused qualifications aimed at the changes the market, government and societal needs for effective service delivery.
- Continuous, timely response to changing markets in terms of offering, teaching capability (method, trainers and mixed mode of learning), student enablement (flexible enrolment, etc.), supporting technologies, funding, partnerships and solution development.
- Establish a multi-stakeholder network architecture to promote thought leadership and innovation, and to facilitate ICT strategy for Government, industry and society.
- Maintain a culture conducive to ethical work practice, thought leadership, continuous change and flexibility, teaching and learning, collaboration, accountability, innovation, human capital development and talent management.
- Develop an appropriate tool to measure the appropriate e-skills interventions against the goals of the MTSF 2009 -2014, NDP 2012 and MDGs;
- Develop a measurement mechanism that is reflective of our business strategy.

FUNCTION STRUCTURE

The function structure diagram below show all the goals that the Institution needs to achieve and group these according to functional areas. The ideal internal business functions have evolved from the institution's vision and mission statements and the impact of the critical success factors.

Its structure was defined in six models which represent six views on the New Single Entity for e-Skilling:

1. Multi-stakeholder Collaboration

- Manage multi-stakeholder partnerships across business, government (including global development agencies), education and civil society including labour to impact national priorities.
- Has a proactive approach to environmental scanning in a rapidly changing landscape through its national platform that can be more adequately assess gaps, overlaps and opportunities for collaborative approaches.

2. Curriculum Development

- Developing taxonomy for e-skills teaching and learning curricula and service offerings aligned to South Africa's strategic plans and that this framework be populated by all current offerings across business, government, education and civil society.
- With its established links with all relevant KSPs, the New Single Entity for e-Skilling curriculum framework responds to new market needs and demands in a coordinated environment with higher education institutions.

3. Research and Innovation

- Provide a focus for continuous research in a cross disciplinary manner to concentrate on new ways to embed technology into people's lives to improve business opportunities, access government services and social cohesion.
- Manage evidence-based research and development for a collaborative knowledge economy to address the national goals (MTSF 2009-2014 and NDP 2012) e.g. thought leaders (policy and practice).
- Develop and manage an evaluation and monitoring framework for collaborative knowledge economy based efforts to address national goals i.e. MTSF 2009-2014 and NDP 2012.

4. Advocacy and Awareness

- Create citizenry for the Information Society i.e. awareness, advocacy, application and alignment to the MTSF 2009 – 2014 and NDP 2012.

5. e-Skills Aggregation

- Develop and implement a national e-skills monitoring framework to measure the uptake and usage of technology within the country.

Appendix F: e-Skills Summit 2012 Panel Questions

Theme	Questions				
Building the e-skills capacity to respond to the country's national strategic developmental strategies and policies	What could be the role of e-SI as a national catalytic organisation in conducting an even more responsive approach to the lack of skills in the country? What national architecture is required?	How can social astuteness and leadership skills help in building e-skills capacity to respond to the country's national strategic developmental strategies and policies?	What issues are important in capacity development for an m-education and m-society environment?	How can aggregation of effort and M&E at all levels (i.e. local, regional and national) be further developed and successfully implemented?	What are the critical factors for effective human capital development in a rapidly changing technological environment?
Innovation and creativity to create new job opportunities	What are the key innovation and creativity competencies needed for extensive job creation for equitable prosperity in an ICT enabled society (deep rural, rural and peri-urban)?	How can governments support innovation, creativity and social astuteness among its citizens in an e-context (e-social astuteness)?	What role can the private sector, academia, civil society and organised labour play to promote innovation and creative industries within a developmental state context?	How can mobile ICT (and other ICT) be innovatively utilised to enhance the general skills level of young unemployed and citizens with insufficient formal education?	What are the components and role of an e-skills ecosystem in the mobile environment?
ICTs and e-Skills within a developmental context	What/where are the main opportunities and challenges for socio-economic appropriation of ICT across governments, business, education, civil society and organised labour in developing countries?	What types of policies are needed to promote a vibrant ICT sector to be capable of contributing to the local socio-economic development, food security, and land and agrarian reform to improve quality of life for deep rural, rural peri-urban communities?	What policies should be in place to enable the incentives that government can give to stimulate acquisition of e-skills for equitable prosperity and inclusive growth?	What policies are needed for an effective way to raise local appropriation of ICT in deep rural, rural and peri-urban areas in relation to current practices and the development of e-skills in South Africa?	How can e-skills be used to expand opportunities for the rural poor and uneducated to access an increasingly demanding labour market, whilst promoting social cohesion initiatives?

Building a dynamic information structure	What set of e-skills are required to enhance service delivery and community participation that is developmental, agile, competent and citizen-centric?	What would be necessary for an effective shift in Government funding towards delivering impact against the global e-readiness indicators and in increasing equitable prosperity (e.g. what should be the nature of re-alignment to new National strategic goals, development of a collaborative Government, Business, education, Civil Society and Organised Labour structural Architecture [NQF, Collaboration] Aggregation?	What would be the most effective ways/s to proliferate and accelerate multi-stakeholder participation at all levels (local, provincial, national) and across all stakeholder groups for national impact against e-readiness for improved equitable prosperity?	What new e-skills are required for the changed technological development (e.g. mobile, cloud computing, big data…)?	How can the e-Skills Institute best ensure that ICT-oriented education and training, research and evaluation and broadly defined e-skills development initiatives are appropriately designed to address the requirements of rural development challenges and social integration?

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