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**innovative**  
**responsive**  
**developmental**  
**enabler**  
**collaborative**

The e-Skills Institute is a national catalyst, facilitator and responsive change agent in the development of SA, within the globally evolving information and knowledge-based environment, by leading the creation of key e-skills development strategy, solutions, practices and the implementation thereof, to benefit the total population. The e-Skills Institute focuses primarily on four components: research, teaching and learning, innovation and a monitoring and evaluation framework.

## Achievements for 2012/13

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Through 2012, the e-Skills Institute (e-SI) continued on its path to e-skill South Africa for equitable prosperity and global competitiveness. This is a vital contribution to the delivery of the National Development Plan (NDP), the challenges outlined in the recent World Economic Forum (WEF) Global IT 2013 report and to enhance opportunities as a member of BRICS (Brazil, Russia, India, China and South Africa).

### Increased visibility

Last year, the e-SI increased its visibility at national and provincial levels and impacted more than 30 000 South Africans at various levels. This included decision makers, consumers of technology, practitioners in the ICT and broadcasting sectors, as well as communities.

### Progress on NeSPA

The e-SI has updated its National e-Skills Plan of Action (NeSPA 2010) with a broadly-based consultative process that culminated in an ITU-supported summit. Work to date highlights the important need to harmonise effort across the vertical solutions of individual government departments, state-owned companies, business, education and civil society.

### Thanking the e-skills community

Thank you to the e-skills stakeholders for your contributions to NeSPA 2013, as well as your input into naming the Integrated Entity. Next month, the new entity will be launched.

The e-SI has examined world-best practice in collaborative organisational network architectures. It has also established formal alliances with more than 50 national and international organisations (business, education, government, civil society and international bodies) to develop a coordinated approach for addressing e-readiness and to build e-astuteness across the full socio-economic spectrum of South African society.

### Strengthened thematic areas

The e-SI has strengthened its focus in its six thematic areas:

- e-Inclusion and social innovation
- Creative new media industries
- e-Enablement of government service delivery
- ICT for rural development
- Knowledge-based economy and e-social astuteness
- Connected health



## 2012 highlights

The e-SI, through its leadership position, has created an environment for e-skills collaboration across business, government, education, civil society, organised labour and international development agencies.

The e-SI has further taken its architecture to a provincial level.

The e-SI model was endorsed by the ITU at their recent Global ICT Forum on Human Capital Development hosted in October 2012. It was recommended to 55 nation states for adoption.

**The biggest success is that the Minister of Communications has signed off on the Integrated Entity (e-SI, ISSA and NEMISA). The entity is now well positioned to harness existing resources and develop new approaches to the coordination of appropriate capacity development using its multi-stakeholder platform to contribute to the massification of e-skills delivery at all levels.**

The target is to increase the levels of e-astuteness of 10 million South Africans over the next five years and thus build an informed consumer base for new ICT-enabled service delivery processes of government, business, education and civil society. This will assist in uniting South Africans around a common programme to fight poverty and inequity, to build an active citizenry that can develop an inclusive economy and to build leadership throughout society that can more effectively work together to solve problems.

The activities within the thematic areas have resulted in a number of outcomes. These include:

- An increased number of accredited courses relevant to new market needs and demands, offered through participating universities in a coordinated manner
- Increased intake in e-skills related courses aligned to and accepted by industry, government and education (university and FET colleges)
- Identifying Creative Industries (including broadcasting and ICT-specific application development) as a proven new area for sustainable employment
- Establishing a national e-skills research network (ReSNeS) to focus on continuous research in a multi-disciplinary manner and to concentrate on new ways to embed technology to improve business opportunities and access to government
- Establishing an approach to environmental scanning in a rapidly changing landscape that can more adequately assess gaps, overlaps and opportunities for collaborative approaches that e-skill South Africa in ways that build a societal e-astuteness

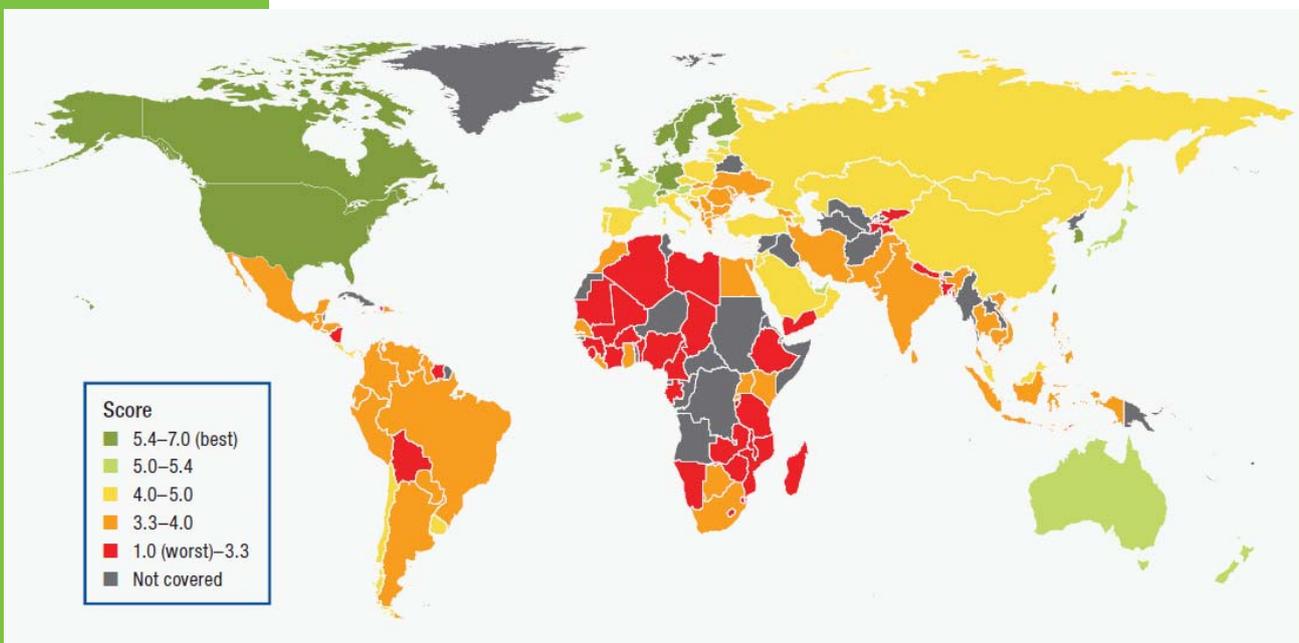
## The WEF Global IT 2013 report

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The World Economic Forum (WEF) Global IT 2013 report shows that South Africa has gone up two positions. The country is now in 70th place.

The report notes: "Despite a sharp improvement in the development of its ICT infrastructure (59th) – notably in terms of international Internet bandwidth capacity (66th) – and a strong uptake by the business community (33rd), the ICT impacts (92nd), particularly the social ones (112th), remain limited. The perception of a lack of clear government vision (105th) to orchestrate and implement a holistic ICT strategy for the country, coupled with deficiencies in the educational system for some segments of the population (102nd), play negatively in this process and outweigh a rather positive political and regulatory framework for ICT development (21st) and pro-business environment (55th)."

### WEF Global IT Report 2013 Networked Index Readiness Map



Overall & Subindex / Pillars (BRICS 2013)	SA	Brazil	Russia	India	China
Overall	70	60	54	68	58
A. Environment subindex	33	107	102	85	71
1. Political & regulatory environment	21	78	108	75	56
2. Business & innovation environment	55	126	90	90	105
B. Readiness subindex	95	74	32	68	66
3. Infrastructure & digital content	59	62	43	111	83
4. Affordability	104	76	18	1	40
5. Skills	102	91	61	95	53
C. Usage subindex	72	44	56	81	58
6. Individual usage	81	58	45	121	83
7. Business usage	33	34	95	45	35
8. Government usage	102	48	74	40	38
D. Impact subindex	92	50	53	56	55
9. Economic impacts	51	50	54	43	83
10. Social impacts	112	48	60	73	42

## e-Skilling South Africa – a response to the NDP Supporting the building capabilities

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Below are the six pillars of the National Development Plan (NDP). The table reflects these priority areas as supported by the draft National e-Skills Plan of Action (NeSPA) 2013.

### The NDP Priority Areas to be supported by NeSPA 2013

NDP Priority Area	NeSPA 2013 Action
<b>Pillar 1: Unite around a common pillar to fight poverty and inequality</b>	Developing e-social astuteness across society is an essential component in developing a united approach to fight poverty and inequality. Without this essential ingredient, it is difficult to see how society can be effectively engaged in dealing with these key issues facing South Africa.
<b>Pillar 2: Active citizenry</b>	Developing active citizenry in current times when more than 90% of poor people in townships have access to a cellphone 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 NeSPA.
<b>Pillar 3: Inclusive economy</b>	An inclusive economy simply cannot be developed without a clear recognition of the impact of increasingly powerful, mobile, accessible and affordable modern ICT devices. Without a plan to develop capacity (e-social astuteness) right across society to use these devices effectively as customers, clients, consumers, businesses, SMMEs, families and communities, an inclusive economy will remain an elusive dream.
<b>Pillar 4: Build capabilities</b>	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.
<b>Pillar 5: A capable developmental state</b>	A capable developmental state in a modern world clearly requires a state that is e-ready. Achieving a capable developmental state simply cannot be achieved without a concerted effort to address the issues underlying South Africa's e-readiness rankings.
<b>Pillar 6: Leadership throughout society to work together to solve problems</b>	Developing leadership across the breadth and depth of society to solve problems is heavily dependent upon the effective use of modern ICT to bridge socio-economic divides, share discussions across wide groups, build consensus and deliver collaborative approaches. Without a well-developed e-social astuteness across the full spectrum of society making best use of ICT including social media, it is difficult to see how a collaborative approach to problem solving can be developed.

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## Towards an e-skills roadmap for e-health Supporting unity to fight poverty and inequality and building capabilities

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E-skills and e-enablement provide opportunities for improved service provision and the chance to empower people to be more engaged – both as patients and as citizens in maximising their own health outcomes. However, these opportunities greatly depend upon the capacity to make effective use of new ICT devices and ICT capacities.

On 27 March 2013, representatives from the e-SI multi-stakeholder network (including government, state-owned enterprise, business, education, civil society and organised labour) formed the panel at the e-Strategies e-Skills Roundtable. The intention was to discuss 'Building e-astuteness for healthy communities' as part of the e-Strategies Forum hosted by e-Strategies Africa.

### Primary challenges

The biggest challenge to developing e-skills was seen as the cost of transporting data and the tools needed for using the data. Readiness and capacity building is a very important component in any m- and e-health programme. These need to be examined at different national, organisational and community levels with various tools to assess them. (Core readiness looks at governance, management issues and technology readiness.)

There is also a need to build an integrated architecture and the guidelines for achieving the recommended solutions in the e-health strategy from the National Department of Health. Without this, disparate vertical solutions will be created and there is the possibility of increased costs when integration is needed.

Past lessons have shown that in nearly all technology provisions, subsequent technical support is absent. This impacts on the usability of the solution. While courses are being developed in a variety of ICT fields, there are very few skilled resources in the country. Resources, such as SANREN bandwidth, are not being optimally used yet.

There needs to be a national architecture for e-skills with massification as the goal. Included in this is ongoing awareness of technology trends, especially within the mobile arena. Localisation, cultural relevance and appropriate language must be part of provided solutions.

### Socio-economic diversity

ICT devices provide the opportunity to develop new health systems which support primary, secondary and community health practices in their current paradigms. They also provide the opportunity for increased integration of effort across primary, secondary and community health provision, in a more inclusive approach that is 'top down', 'bottom up', 'inside out' and 'outside in'.

It was noted that for many South Africans the only way of accessing digital data is through mobile. Content is seen as the primary challenge. There is nothing that has universal support and coordination at national level.

The Limpopo e-Skills Knowledge Production and Coordination CoLab, which is responsible for e-health, intends to start a small-scale pilot project which takes into consideration the social and cultural background of users. A key point noted was that the focus must be on addressing



*Representatives from the e-SI multi-stakeholder network formed the panel at the e-Strategies e-Skills Roundtable.*

health and not technology, and the outcomes must be health related. Evidence needs to show a positive influence in terms of improved health with visible benefits.

### Monitoring and evaluation

The progressive developmental approach (based on 'doing with', as well as 'doing to' and 'doing for') is generally held as the most appropriate approach for developing states. It allows for the embedding of a sustainable and affordable process. The approach entails the use of 'lighthouse projects' to develop a good contextual fit, then a process of evaluation followed by massification.

Success needs to be based on appropriate monitoring and evaluation. It was agreed that all e-health programmes will have an element of monitoring and evaluation component to evaluate intended goals and objectives.

There are various tools, frameworks and models available for monitoring and evaluating e-health programmes. ICT, in particular mobile applications, provide excellent opportunities for traditional quantitative monitoring and evaluation at a level not previously available. However, sustainable approaches to developing better health outcomes are heavily dependent upon societal and cultural norms and praxis. It was agreed that a better understanding of social epidemiology is required to gain a considered position in the important qualitative domains of improving health outcomes in developmental states.

The agreement was to look at medium- to long-term perspectives. This includes acknowledging the unique areas in South Africa where specific home-grown solutions

## [continued] Towards an e-skills roadmap for e-health

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need to be built – an important consideration from a sustainability and developmental perspective.

### e-Astuteness

Developing an e-astuteness across the full spectrum of South African society is crucial for achieving better and more responsive health outcomes. Formal education, formal training and community development processes cannot hope to achieve this in a substantive and inclusive manner, even with a substantive peer referral process. There is a need to develop better self-directed learning approaches for improved e-astuteness.

e-Literacy must start from school level. The importance of ICT in education has been acknowledged for a long time. In 2004, the Minister of Education emphasised its importance. At the recent ANC national policy conference there were calls for the development of e-skills in the country.

Among the youth (including those in low socio-economic contexts), self-directed and collaborative learning in the adoption of modern ICT devices has been shown to have a significant potential to increase digital inclusion in developmental states. This provides a base to create a model where provision of access to appropriate motivational content will translate into effective learning in rural settings. What is missing is the platform to monitor impact and to address major gaps in the system. The e-SI, through its e-Skills CoLabs, is well positioned to address this.

### Cost and content

Many studies have demonstrated the importance of affordability of access in achieving a level of digital inclusion required for achieving a healthier society.

The adoption of cellphone technology across the full spectrum of South African society, regardless of economic circumstance, is positive proof that there is a huge interest

in the appropriation of ICT into daily life. However, it's important to determine to what level those with low levels of formal education can use the increasing capabilities of mobile devices and what level of access can they afford.

The question then arises: to what extent should the South African health community lobby government to regulate ISPs and cell phone companies to adjust their pricing schedule to provide a basic level of free access?

It was agreed that a primary challenge is South African-based content. The e-Skills Institute (e-SI) aims to assist by developing the human capacity for online content.

### Recommendations

The e-SI will work, in collaboration with the Department of Health, to build a community of influence that promotes an inclusive and collaborative approach to developing an e-astute society for better health outcomes. Key areas in the roadmap are as follows:

- To create a pressure group with the aim of finding more practical and cost-friendly pricing for access and the required infrastructure for access to information.
- To create a national approach for monitoring and evaluating and aggregation effort of e-skills interventions, especially for connected health.
- To conduct an audit of access and skills readiness to determine existing effort of e-skills to determine what is being done, who has access to what and at what costs.
- To develop an approach for building e-astuteness for healthy communities that includes targeted short courses, seminars and promotes self-directed learning especially targeting those individuals (youth and women) outside of formal education.

*Photos from the e-Strategies outcomes brochure.  
Content is also based on information within the brochure.*

## Upskilling for e-skills development Supporting the building of capabilities

**T**echnology is not isolated within the ICT specialist realm. The enabled worker or citizen uses it in his or her daily life in a multitude of ways.

The road to e-skilling the South African nation is not solely focused on those who have little or no e-skills. All users, practitioners and specialists are part of the solution to increasing South Africa's global competitiveness and

creating wealth equity.

Part of the courseware developed by the e-Skills Institute (e-SI) e-Skills CoLabs focuses on upskilling practitioners. The KwaZulu-Natal e-Skills Knowledge Production and Coordination CoLab, based at the Durban University of Technology, has been continuing with its courses on using social media on the internet.

In collaboration with the Technical Centre for Agricultural and Rural Cooperation (CTA), a course was run from 8-12 April 2013 at Mangosuthu University of Technology and comprised of 28 students. A second course was run at the University of Zululand for 25 students from 15-19 April 2013. This intervention assists students and academics to innovate or develop Web 2.0 artefacts that allow government and citizens to produce more e-services.

Web 2.0 delegates  
from Mangosuthu  
University



## Multi-stakeholder collaboration for increased output Supporting the building of capabilities

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The National e-Skills Plan of Action (NeSPA) 2013 document noted specific needs that require delivery mechanisms for impact. Among these were competent workers and developing and supporting career structures.

No single organisation can create sustainable national solutions alone. International research has shown that the multi-stakeholder collaborative network is the key. The e-Skills Institute (e-SI) has been continually developing this network model and positive outcomes have already been realised. The collaboration with industry for the Broadcast Digital Migration (BDM)



project is a case in point. (The e-SI has the mandate to drive this multi-stakeholder engagement.)

### e-skills for BDM

Post the third e-Skills National Curriculum Development and Delivery Approach Workshop for Broadcasting Digital Migration on 28 February 2013, industry stakeholders have agreed to share their installation technician databases. This heralds an important step within the collaborative space.

The curriculum for installers has also been developed. It includes a one-day course for existing installers and a five-day course for new installers. The working group, a combination of government, academia and industry, are working closely with MICT Seta to ensure the courses are based on the correct standards and requirements.

## Creative South Africa – mobile app development on the increase Supporting the development of leadership and building capabilities

To meet South Africa's needs within the competitive global arena and within the country's borders, it is critical to develop e-skills. Due to the proliferation of mobile devices, South Africa is positioned to use mobile apps in a number of ways – from creative industries and e-health to rural development.

For there to be delivery for impact, app development needs to move out of the ICT-specific environment and community leaders and educators need to be trained. This will allow for a ripple effect and massification of e-skills to occur. The following courses run by or enabled by the e-Skills Institute show the progress in this area.

### Appshed

The Gauteng e-Skills Knowledge Production and Coordination CoLab, based at the University of Pretoria, ran an Appshed workshop on 20 March 2013. Appshed is an online learning platform for building HTML5 web apps.

The intention was to teach non-IT lecturers the importance of the mobile web, how to build mobile apps, how to create e-learning content for smartphones and tablets, and how to introduce app development to their students. The Western Cape e-Skills Knowledge Production and Coordination CoLab ran the same workshop on 13 March 2013.

Currently the Gauteng e-Skills CoLab is doing an analysis on the workshop. Initial feedback was very positive with all 25 participants developing mobile apps. Expectations and recommendations will follow from the analysis.

### BB10 development

The Gauteng e-Skills CoLab is running another BlackBerry

10 development course for 25 non-IT lecturers. The objective is to provide impetus for non-IT staff to develop mobile apps. The course started on the 23 April 2013 and will run for five weeks.

### Introduction to information systems

The Gauteng e-Skills CoLab has started a first year course which uses design thinking as a means to prototype innovative mobile apps. Started in February 2013, the 'Introduction to Information Systems' course will run until mid May. There are currently 1459 students in the course.

### What is design thinking?

Design thinking is essentially thinking like a designer when approaching problems. It incorporates a human-centred approach with that of technology and the needs of the organisation. There are a variety of techniques and tools that are used in what is essentially a process. Design thinking requires cross-functional insight and that many solutions are provided with the best fit ultimately chosen.

## Smart community centres to promote e-literacy training Supporting an inclusive knowledge economy

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For the population to be able to interact effectively through the use of ICT, it's important to develop delivery mechanisms that are inclusive of the full diversity of the socio-economic spectrum.

Smart community knowledge centres are a key element for building an inclusive knowledge economy and promoting e-astuteness, especially within deep rural, rural and peri urban areas.

The Southern Gauteng/ Northern Cape e-Skills Knowledge Production and Coordination CoLab held an e-literacy workshop on 10 April 2013. The intention was to plan for smart centre delivery sites across the country and to define delivery targets (including student numbers). The aim is to establish 18 smart centres around the country and implement e-literacy training available to all citizens. This will contribute to making SA e-literate.

## Responding to local needs within a research environment Supporting an inclusive economy, unity to fight poverty and inequality, and building capabilities

It is not enough to provide technology services to a population, people need to know how to use these in a socially astute way (known as e-social astuteness). For there to be technology uptake, ICT development – from hardware and software through to courseware – needs to take into account the culture and context of the intended audience.

Part of developing e-astuteness is gaining further understanding of the people in South Africa and how best to address their needs – a focus areas for the national Research Network for e-Skills (ReSNeS).

Within the research environment, the KwaZulu-Natal e-Skills Knowledge Production and Coordination CoLab (based at the Durban University of Technology) is responding and providing a technology platform to local challenges in the province.

### e-Learning for rural pupils

An e-learning initiative was launched on 2 March 2013. The objective is to assist pupils with mathematics, physical science and English. This is a collaboration between the KZN e-Skills CoLab, the MMI Foundation (merger of the Metropolitan and Momentum group), Durban University of Technology and the KZN Provincial Department of Education. The MMI Foundation funds and develops projects in the areas of health, education, orphaned and vulnerable children and people with disabilities.

The 50 Grade 11 pupils come from schools in Ilembe, a rural area in KZN. Top learners were selected by officials at the Department of Education. The free extra e-learning tuition includes travel expenses, meals and the use of a laptop. The aim of the project to assist top learners to attain university admission marks. If the pupils meet the agreed performance targets, they will keep the laptops. The initiative runs until the end of the year.

A secondary aim of the course is to measure the benefit of e-learning to learner. Monitoring will be done by the SA Actuarial society. In 2014, the initiative will continue as the

pupils progress into Grade 12 and a new group of Grade 11 pupils will enter the programme.

### Research model that incorporates culture

The doctoral dissertation, 'Developing a model to design and implement computer user interfaces in rural



*Pupils from rural areas in the MMI e-learning programme*

communities, an exploratory study' explores the need for alternative concrete user interface objects that adopt indigenous African artefacts as metaphors.

Underpinning the work is the idea that many African users do not have exposure to and knowledge of the traditional office that provides the metaphors associated with computers. One impediment to the efficient use of computer systems is the gap between system designs that typically follow western cues for crafting user interfaces and actual users who use those systems within their diverse cultural frames.

This research work generated a model to articulate user requirements that incorporate culture to inform the work of system designers. The thesis was written by Delene Heukelman, Associate Director: Department of Information Technology at Durban University of Technology and the Curriculum Director of the KwaZulu-Natal e-Skills Knowledge Production and Coordination CoLab.

## [continued] Responding to local needs within a research environment

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### Building and promoting e-astuteness

The Eastern Cape e-Skills Knowledge Production and Coordination CoLab, based at Walter Sisulu University, is responsible for building e-skills capacity in the Eastern Cape province. This includes the development of e-literacy training, apps development, research, and monitoring and evaluation.

Another function is that of coordination, with the Eastern Cape e-Skills CoLab linking to the provincial Human Resources Development Council (HRDC) and to the Eastern Cape Socio Economic Consultative Council (ECSECC).

The Eastern Cape e-Skills CoLab stakeholders, at a recent meeting, agreed on an assessment visit to the Makana Apps Factory.

The Eastern Cape e-Skills CoLab is in the process of signing a Memorandum of Understanding with Rhodes University regarding the Makana Applications Factory. (Rhodes University is a stakeholder in the CoLab.)

The focus of the Makana App Factory projects is to find sustainable ways to introduce ICT and ICT skills in deep rural, rural or peri-urban areas.

The Makana App Factory media project will develop and pilot a mobile hyperlocal news and information application in isiXhosa for the Keiskammahoek area, a rural community in the Eastern Cape. This includes training events for the community. There is potential to replicate the app in other areas. The project includes the following activities:

- Baseline research to establish the communication needs and existing mobile use
- Five-day application development workshops for both community members and university students
- Application development and customisation
- Twelve Mobile e-skills public workshops to provide

basic training on smartphones and the app

- Five-day citizen journalism training course
- Lectures on mobile e-skills development to tertiary level e-practitioners and e-professionals

The Makana App Factory computer science projects involve the Siyakhula Living Lab in Dwesa, Eastern Cape, and Reed House Systems, a software factory that specialises in building applications for marginalised communities.

The University of Fort Hare is currently part of both of these projects.



*Stella Ndabeni-Abrahams, Deputy Minister  
Department of Communications at the  
Siyakhula Expansion Celebration*

### Community stakeholder showcase

On 18 April 2013, Siyakhula held its Expansion Celebration. The intention was to showcase its activities to stakeholders. It now connects 17 communities in the Mbashe Municipality, to each other and to the rest of the world, through ICT.

Guests included Stella Ndabeni-Abrahams, Deputy Minister  
Department of Communications,

Mandla Makupula, MEC: Education and Training in the Eastern Cape, and King Zwelonke Sigcawu, Paramount Chief of the Gcaleka. Representatives from the Eastern Cape e-Skills CoLab and from ECSECC also attended.

An underlying principle of the 'living lab' methodology is the co-creation of solutions with empowered users from the community. At Siyakhula Living Lab, community members learn about ICTs and how to use them within the community context and needs. Further development includes using the internet for sales of traditional crafts and other value-adding services together with the community.

Schools are used as points of presence. All the software is open source and it's available in African languages.

Siyakhula's aim is to network the community and create an environment that allows for participation in the knowledge society.

*Community members using the Siyakhula  
Living Lab*



### The Pigs Story

On being introduced to the internet as part of the Siyakhula Living Lab project, part of the work done by the Makana App Factory, community members wanted to know if they could find out about government compensation. There was money due to the community post their pigs being slaughtered during the swine flu epidemic.

A Google search resulted in discovering an application form they needed to fill in. No one had told them about this process. Once they filled in the forms, they received the funds.

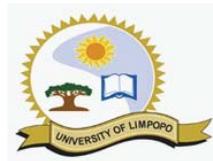
Siyakhula Living Lab uses this story to demonstrate how essential it is for communities to be e-astute.

## Partners in the Department of Communication's e-Skills Institute multi-stakeholder collaboration

### education



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



### government/South Africa



### civil society



### business



### global developmental partners



Kenya



Rwanda

Please note that this list will be extended as there are Memorandums of Understanding in progress across all sectors.

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