



Catalytic thought leadership: Investigating ICT for inclusion in agriculture and rural development

The EC e-Skills CoLab's showcase seminar on 'Speech Technology in Agriculture' was held on 1 December 2016. [Read more on p1](#)



e-Skills for socio-economic development and for future technology disruption

The WC e-Skills CoLab ran a software development short course in mobile app development for high school learners. [Read more on p5](#)



Multi-stakeholder collaboration for a developmental state

The KZN e-Skills CoLab partnered with Accenture to assist unemployed graduates to become more employable. [Read more on p7](#)



Local government collaboration to promote effective service delivery

The KZN e-Skills CoLab is training 200 more delegates in the Higher Certificate in Public Administration (Public Participation). [Read more on p9](#)

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changing to



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The Institute (NEMISA changing to the iNeSI) intends to benefit the total SA population by harnessing ICT for equitable prosperity and global competitiveness. It leads in the creation of key e-skills development strategies, solutions and practices within SA.

It is a national catalyst, collaborator, facilitator and responsive change agent in the development of SA – within the context of national goals and within a worldwide evolving information and knowledge-based environment.

e-skills thought leadership

Catalytic thought leadership: Investigating ICT for inclusion in agriculture and rural development

EC e-Skills CoLab hosts 'Speech Technology in Agriculture' showcase seminar

One of the foundations of the National Development Plan is inclusion at all levels. When considering ICT and the Information Age, people need access and e-skills to participate effectively for individual benefit and for the benefit of their communities.

Without these e-skills and access, the digital divide increases and continues the legacy of poverty and exclusion. Closing this digital divide is integrated into 'South Africa Connect – the broadband policy'.

The rollout of broadband across the country is part of the larger policy framework that includes capacitating people with e-skills so they can effectively use the infrastructure. (This pillar of SA Connect is called Digital Opportunity.)

Eastern Cape seminar on 'Speech Technology in Agriculture'

"It can be argued that after basic needs like food, shelter, and health care, access to information and communication is one of the most important needs in any population group," explained Dr Jama Ndwe from Walter Sisulu University's Department of Mathematical and Computing Sciences.

He was speaking at the 'Speech Technology in Agriculture' showcase seminar in East London on 1 December 2016. The event was hosted by the Eastern Cape e-Skills CoLab: ICT for Rural Development, which is based at Walter Sisulu University and is a provincial CoLab for The Institute (NEMISA changing to iNeSI).

The showcase seminar formed part of the CoLab programme to promote the use of ICT in Agriculture through the multi-stakeholder provincial ICT and Agriculture working group. This is also part of The Institute's larger programme of catalytic thought leadership.

? What is an e-skill (digital skills)?

An e-skill is more than knowing the basics of how to use a computer (computer literacy). While it's essential to be computer literate, the important question is: what can you do with that? **An e-skill means being able to use technology to add benefit to your life – to actively take part in the world and move ahead.**

What is an information or knowledge society?

This describes a society based on creating, distributing and using information and knowledge.

It is a society with an economy where the use of information and knowledge becomes one of the most significant economic and cultural activities.

The event was aimed at anyone with an interest in providing digital opportunities for stimulating rural development. It was attended by delegates from government, business, the farming community, TVET colleges and universities (including students). The Programme Director was Ms Hesjedal, the Acting COO of ECSECC which is a key partner in the provincial working group.



Interactive voice response (IVR) systems

There are 3 basic types of IVR dialogue applications:

- Informational applications where the user interacts with the IVR system to get information on a particular subject (eg departure times from an airline company).
- Transactional applications where the user interacts with the IVR system to complete a transaction (eg making a reservation for a flight).
- Problem solving applications where the user can do more complex interactions that are normally obtained through manned support and customer care services (eg changing seat allocation in a flight).

Article continued: Investigating ICT for inclusion in agriculture and rural development



Delegates at the Eastern Cape seminar on 'Speech Technology in Agriculture'.

Designing technology for inclusion

Dr Ndwe noted that there are numerous challenges to information and communication access, especially for developing countries. These include: prohibitively expensive tools, low levels of literacy, a lack of e-skills, and a "variance in living standards, educational, socio-economic, literacy backgrounds" even within a developing country. This creates a challenge when designing a user interface that works for everyone.

A viable solution is voice-based interactions, especially because Africa has a high penetration of cellphones. Furthermore, the oral tradition is part of African culture.

Dr Ndwe emphasised that human-centred approach in design is essential: "To create sustainable systems, researchers and system developers must engage directly with the communities involved."

Human language technology (HLT) can give opportunities to rural people who may not have the literacy levels or skills to use traditional text-based ICT.

About the Human Language Technology (HLT) Research Group

The Research Group in Smart Systems Competence Area is based at the Meraka Institute, CSIR. It works on HLT research, development and innovation. The focus is on benefitting the people of southern Africa through addressing national priorities and growing the local HLT industry.

Their vision is equitable access to information in a citizen's language of preference. Their mission is to:

- Enable a digital presence for all official languages using language technology
- Enable the equitable use of all official languages
- Eliminate disadvantages due to language
- Bridge the digital and communication divides using language technology
- Enable interaction in the digital world through voice and text

Potential challenges

Dr Naomi Isabirye, from the University of Fort Hare and member of the provincial ICT and Agriculture working group, spoke on 'Challenges in the implementation of voice-based services for rural communities – experiences from the Aloe Project'. The project used a voice-based system so that aloe harvesters and farmers could interact easily around yields and the whereabouts of aloe drums.

The challenges included:

- The cost of voice calls, including the lack of a toll free line for mobile networks (due to call termination rates)
- Speech recognition, including recognising diverse accents and that developers continue to make assumptions about users in rural areas

Latest developments in HLT

The keynote speaker was Dr Karen Calteaux from the CSIR Meraka Institute's Human Language Technology (HLT) Research Group. HLT is technology that facilitates



Article continued: Investigating ICT for inclusion in agriculture and rural development

the interaction between humans and computers through natural language.

The research group is involved in a number of research and development projects, including the development of automatic speech recognition (ASR) systems and text to speech (TTS) systems. Research partners include the Department Arts and Culture, the Department of Science and Technology and the South African National Council for the Blind, as well as international partners.

Dr Calteaux shared details and lessons learned from a number of implementation projects.

- VoiCeS was an international project based in Mali. It used radio stations to transmit information to potential buyers about products by local farmers available for sale.
- In the Lwazi II project, the focus was on collecting and distributing information on livestock diseases (animal disease management). Rural vets provided data by voice, which was supplemented by data provided by dip tank attendants.
- Lifelines India provides advice and guidance through agri-advisory and livelihood information to 1000 villages, benefitting 150 000 farmer households (<http://lifelines-india.net/agriculture/>). The farmer dials in and through an IVR system registers a query. The voice clip is stored in a database. In the backend, a knowledge worker processes the queries through a web interface. This involves looking up queries in the FAQ database and then attaching the answer in the form of a voice clip. The FAQ database is added to when new queries come in. The answer clip is played back when the user calls the service for the answer and can also be retrieved in text format from the village information centre. The programme has resulted in better profits and improved crop productivity (21% year-on-year).

One of the key lessons was the importance of working

CSIR videos on speech technology applications

- CSIR-developed text-to-speech system www.youtube.com/watch?v=wdykz46vjVo
- CSIR-developed Lwazi I service for accessing government services in a user's own language (interactive voice service) https://drive.google.com/file/d/0BzOxwSL_1_4pQXhiN3ZscGd3QWc/view?usp=sharing

with the communities and developing trust. Further lessons include:

- Providing content appropriate to the user. Not only up-to-date, timely and relevant content, but in the local language and accent.
- The speech technology needs to be usable, catering to the user's skill level and experience. It also needs to cope with the environment (noise, non-standard speech etc).
- The interaction must provide value for money, and be safe and secure.
- The service needs to be reliable, sustainable and accessible. It must support multiple users.

The future of HLTs in Agriculture

Dr Calteaux noted that we need to establish an information ecosystem and provide skills development and analytics. It is also important to spend time understanding the problem.

She noted that the objective of HLT-enabled service delivery is to provide fit-for-purpose, speech-enabled service delivery enhancement solutions that enable equitable access to



Delegates at the Eastern Cape seminar on 'Speech Technology in Agriculture'.



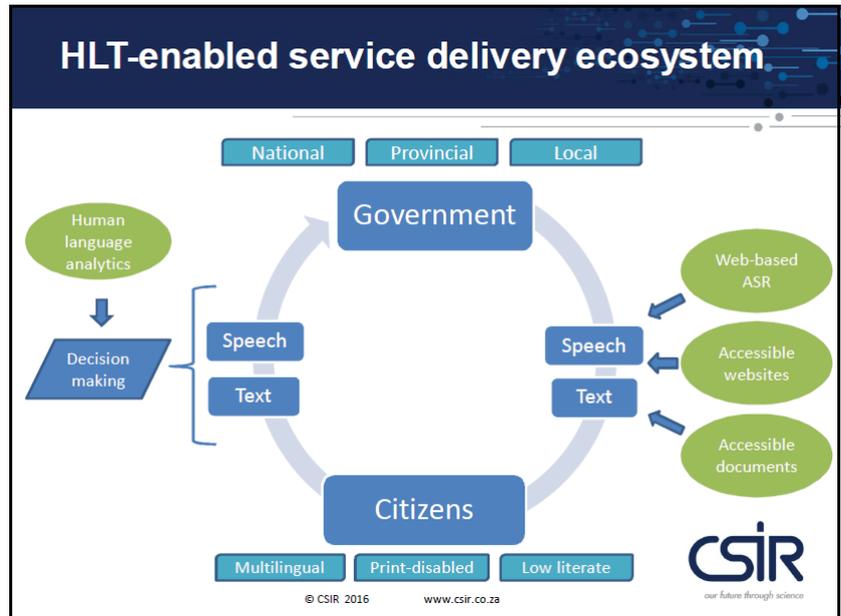
Article continued: Investigating ICT for inclusion in agriculture and rural development

information and equitable participation in the province's economy.

Response to the seminar

Post-seminar evaluation showed that the attendees found the seminar very worthwhile. "We are very excited by the developments in this sector of ICT," said Ms Lorna van der Merwe, Acting Coordinator at the EC e-Skills CoLab. "We are also very fortunate to have leading researchers in this field already based in the province."

"We are highly motivated to promote and capacitate the implementation of this technology in the Eastern Cape. Voice-based systems, combined with mobile phones, wifi, broadband and other technologies, promise unprecedented access to the Information Economy for rural communities, unskilled and semi-skilled small-scale farmers, workers, and others." ☑



Trends in e-skills and the e-skills environment

- In November 2016, the International Telecommunication Union (ITU) released the annual 'Measuring the Information Society Report'.** It features key ICT data and benchmarking tools to measure the Information Society, including the ICT Development Index (IDI). The IDI 2016 captures the level of ICT developments in 175 economies worldwide and compares progress since 2014. Of interest is the link the ITU places between ICT Capability (skills) and secondary and tertiary enrolment, as well as adult literacy. See the following for further information:

 - o ITU releases annual global ICT data and ICT Development Index country rankings: www.itu.int/en/mediacentre/Pages/2016-PR53.aspx
 - o The full report: www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2016.aspx
 - o South Africa's country card: www.itu.int/net4/ITU-D/idi/2016/#idi2016countrycard-tab&ZAF
- Research is being done on children's use of the internet.** Called 'Global Kids Online', it is an international research project that aims to generate and sustain a rigorous cross-national evidence base through a global network of researchers and experts (<http://blogs.lse.ac.uk/gko/about/>). 'Global Kids Online South Africa' is part of the research that focuses on South Africa (<http://blogs.lse.ac.uk/gko/research-results-southafrica/>). Global Kids Online is a collaborative initiative between the UNICEF Office of Research-Innocenti, the London School of Economics and Political Science (LSE), and the EU Kids Online network.
- According to Ericsson's 'Sub-Saharan Africa Mobility Report', Sub-Saharan Africa has the highest growth rate of mobile subscriptions of any region on the globe.** See www.ericsson.com/assets/local/mobility-report/documents/2016/ericsson-mobility-report-november-2016-rssa.pdf for the full report. ☑

e-skills development for e-astuteness

e-Skills for socio-economic development and for future technology disruption

Coding skills for high school children in Gugulethu, Western Cape

The 7th edition of the JCSE Skills Survey 2016 reports on ICT skills trends in South Africa. It is released by the Joburg Centre for Software Engineering (JCSE), a University of Witwatersrand partnership with government and industry. (www.jcse.org.za/research/2016-jcse-ict-skills-survey)

ICT skills gap in SA

The survey shows "an immediate unsatisfied need for skills in the ICT sector that is only going to get worse in the medium and long term". This refers to the advent of 'The Fourth Industrial Revolution', as discussed at the 2016 World Economic Forum. This revolution sees new technologies reducing the need for jobs that require repetitive tasks. Concurrently, there will be an increased demand for new specialised skills.

Education and exposure to ICT

The survey also highlights concerns regarding basic education. Specific to e-skills and e-astuteness, the report notes that "[e]xposure to and familiarity with ICTs for all learners is essential, in order to equip them to adapt the modern tools to their daily lives. Some laudable initiatives have appeared... but they have yet to reach a sustained, critical mass for all grades of learner".

Creating a youth pipeline for ICT practitioner e-skills, as well as developing e-skills and e-astuteness in the population, is critical for South Africa's development. It is also critical for future-proofing the country in the face of 'The Fourth Industrial Revolution'.

Coordinated e-skills teaching and training

The survey emphasises the following in its concluding remarks:

- The need for investment in teaching and training
- The potential contribution to society that filling the ICT skills gap will make
- The benefits that can come from better coordination and planning

JCSE Skills Survey 2016

The JCSE Skills Survey 2016 identifies the following ICT e-skills gaps in South Africa:

1. Information Security
2. Network Infrastructure
3. Software as a Service/Cloud Computing
4. Database Development
5. Application Development
6. Big Data/Internet of Things and Business Intelligence/Knowledge Management.

- The urgent need to move plans from discussion to execution

The work of the Institute

The Survey's conclusions align with the work of the Institute (NEMISA changing to iNeSI). For there to be an inclusive Information Society, as outlined by the National Development Plan, it's essential that there is human capacity development in e-skills. For the broadband infrastructure to be used (as noted in South Africa Connect – the broadband policy), South Africans need to have e-skills and to be e-astute.

The Institute focuses on e-skills and e-astuteness development in South Africa, using a coordinated multi-stakeholder collaborative network. This ensures that partners, as well as all other stakeholders, are aligned to national policy while reducing duplication and increasing impact.



The Institute's e-skills framework

Developing human capacity in e-skills incorporates various types of e-skills:

The base level of e-skills which is digital literacy or e-literacy
User e-skills (e-skills that move beyond basic digital literacy, such as using spreadsheets)
Sector user skills (e-skills for work in a specific sector, organisation type or profession)
ICT practitioner e-skills (for developing and implementing technologies ie professions in the ICT field)
e-Skills leadership (representing skills in both using ICT systems and in the leading of organisations)

Article continued: **e-Skills for socio-economic development and for future technology disruption**

WC mobile app development course for high school learners

The Western Cape e-Skills CoLab: e-Inclusion and Social Innovation, based at the University of the Western Cape (UWC), aims to contribute to mobile app and e-skills development. It ran a software development short course in mobile app development for high school learners. This was done in partnership with Usiba Loluntu, a not-for-profit organisation (NPO).

The initiative is part of creating pipelines in schools, exposing learners to ICT and motivating them to train as ICT practitioners. The initiative also looks to increase the mobile app developer pool, and to encourage youth to use mobile apps to address challenges in their own environments. This supports the ecosystem outlined in SA Connect, which not only requires digital literacy and e-astuteness but the higher-level e-skills to create content and applications.

Pilot learning intervention: The course ran from 3 October 2016 until 11 November 2016. It was used as a pilot to test the training material and approach.

About the delegates: The intervention is for high school learners from Grade 10 to Grade 12 (Matic). The focus is on youth and disadvantaged areas. The pilot group consisted of high school learners from Gugulethu, Western Cape.

High school learners at the Western Cape mobile app development course.



The group started with 15 learners and 3 teachers. Nine completed the programme.

About the partner: Usiba Loluntu was established by Zandile Banjwa as an NPO community organisation. Its motto is 'Eradicating illiteracy through Innovative Learning'. It assists disadvantaged schools in townships by aiding academics and teaching computer skills. Mr Banjwa is an alumnus from UWC. The NPO has existing relationships with schools and thus provided access to the school learners. (www.facebook.com/usibaloluntu/about/)

About the course: The content covered learning about Greenfoot, as well as design thinking elements. (Greenfoot is an interactive Java development environment designed primarily for educational purposes at the high school and undergraduate level.) It was a one-week programme and successful delegates received a certificate of attendance.

Response to the intervention: There was a positive response to the learning intervention. "They insisted on continuing with the programme despite disruptions during the #feesmustfall protests," says Dr Leona Craffert, Director of the EC e-Skills CoLab. The initiative began on UWC campus and then had to be completed at the school lab. Dr Craffert says that using social media tools, such as Whatsapp, helped with organisation during the unrest.

Future plans: The course is planned for other schools, specifically those in rural and peri-urban areas. Dr Craffert says that the CoLab is in discussions with its partner about this. ✓

About the trainers

- Mr Chiunde Mwanza was a WC e-Skills CoLab intern from 2013 to 2015. He is a University of the Western Cape (UWC) student currently busy with his Masters in Mathematics (data analysis). Not only was he a trainer, but he packaged the training material.
- Xolani Delman, a Masters student in Computer Science, participated in the packaging and delivering of the training. He participates in CoLab initiatives one day per week.

e-skills development for e-astuteness

Multi-stakeholder collaboration for a developmental state

KZN e-Skills CoLab partners with Accenture to deliver a 'Skills to Succeed' programme focussed on employment and entrepreneurship

Unemployment is high and the future holds further uncertainty. Known as the 'Fourth Industrial Revolution' (World Economic Forum 2016), there is potential for technology to replace jobs that are task based. Conversely, the increasing impact of technology offers opportunities within ICT.

Currently, there is a lack of ICT practitioner e-skills in South Africa. Yet ICT graduates remain unemployed. (See article on p5 for more information on the ICT skills gap.)

Many organisations, from business to NGOs and government, want to make a difference to the e-skills landscape in South Africa. However, no single effort can significantly change the current situation. Collaboration is the way forward. For all these entities, the overarching aim is to improve individual and communities' livelihoods and this needs to be done in partnership.

The Institute (NEMISA changing to iNeSI) has created a multi-stakeholder collaborative network that provides a platform for stakeholders to engage in e-skills initiatives. The aim is to:

- Align these initiatives to national priorities through relationships with government
- Reduce duplication by adapting initiatives that cover the same area or bringing similar projects together etc
- Increase impact by uniting stakeholders on all levels to target specific areas

In the cases where stakeholders have created their own partnership networks for e-skills initiatives, the Institute can assist with further alignment. The Accenture 'Skills to Succeed' (S2S) Project with the KZN e-Skills CoLab is a case in point.

KZN e-Skills CoLab partners with Accenture's 'Skills to Succeed' programme

Accenture South Africa identified an industry demand for specialists in Java, software testing and 3D animation. (Accenture is a global professional services company, providing strategy, consulting, digital, technology and operations services. www.accenture.com/za-en).

This is part of their S2S programme, aimed at developing skills for employment and entrepreneurship. (See sidebar for more information.)

Alignment with national and industry vision

Based on research findings, Accenture proposed learning initiatives in advanced software development to the KZN e-Skills CoLab: e-Enablement for Effective Service Delivery and to the Durban University of Technology (DUT). The CoLab is based at DUT.



About Accenture's Skills to Succeed

Accenture's 'Skills to Succeed' advances employment and entrepreneurship opportunities in markets around the world.

Through relationships with stakeholders (including partners and clients), Accenture aims to make a measurable and sustainable difference in the economic vitality and resilience of individuals, families and communities.

The programme has the following targets:

- **Demand-led skilling:** Equip more than three million people with the skills to get a job or build a business.
- **Employment and entrepreneurship outcomes:** Increase the focus from skill-building programmes to sustainable jobs and businesses, and improve the collective ability to measure and report on these outcomes.
- **Collaboration for systemic change:** Bring together organisations across sectors to create large-scale, lasting solutions aimed at closing global employment gaps.

For more information, see:

- Brochure on the project: www.accenture.com/_acnmedia/PDF-5/Accenture-Global-Skills-to-Succeed-Brochure-June-2015.pdf
- For insight into the learning agenda: www.accenture.com/t20160317T095101_w_us-en/_acnmedia/PDF-8/Accenture-Skills-to-Succeed-Insight-and-Learning-Agenda_vf-PDF.pdf
- For research insights and recommendations: www.accenture.com/t20160718T013052_w_us-en/_acnmedia/PDF-23/Accenture-Skills-to-Succeed-Insight-to-Action-Paving-Pathways-to-Employment.pdf.

Article continued: Multi-stakeholder collaboration for a developmental state

The KZN e-Skills CoLab then aligned the project with two further areas of specialisation required by industry and government, namely PHP and mobile application development. It also played the role of implementation partner.

Closing the gap between academia and industry

The overall aim of the S2S learning initiative was to assist unemployed graduates to become more employable. This was done by closing the gap between what they learn at a tertiary institution versus what is required by industry.

Aside from the ICT training component, the learning initiative also equipped learners with skills needed to secure jobs. This included interview skills, assisting with the development of CVs, and soft skills (speech, presentation, etc). The learners were also provided with links and job ads for internships, and CVs were circulated to companies.

The target group was unemployed ICT graduates. These delegates came from DUT, University of KwaZulu-Natal, Mangosuthu University of Technology, and other colleges.

About the partners

The advanced skills software development learning initiative was a partnership between:

- Accenture
- The KZN e-Skills CoLab
- Media Sea
- MICT (Media, Information and Communication Technologies Sector Education and Training Authority)
- The Rockefeller Foundation
- Durban University of Technology

About the courses

The Advanced Java group consisted of three cohorts:

- Group 1 of 20 delegates studying from May to

September 2015

- Group 2 of 19 delegates studying from October to February 2016
- Group 3 of 38 delegates studying from March to June 2016

The PHP course ran from June to September 2016, with 16 delegates. The mobile application development course ran from July to September 2016, with 20 delegates. The software testing group had three cohorts:

- Group 1 of 24 delegates ran from June to August 2016
- Group 2 of 12 delegates ran from July to September 2016
- Group 3 of 20 delegates ran from May to July 2016

The 3D animation group had two cohorts:

- Group 1 of 20 delegates ran from May to August 2016
- Group 2 of 20 delegates ran from September to December 2016

Training predominantly took place at DUT, with MediaSea assisting with 3D Animation.

The graduation ceremony

The graduation ceremony for students that successfully completed the advanced ICT programmes was held at DUT on 7 December 2016. A total of 189 students graduated and received a certificate of completion. Part of the procedure was a networking session with prospective employers.

Aggregation and impact

Currently 68% of the advanced Java delegates have been placed. Of the 3D animation, 50% have been placed. Placements for the remaining courses are: 32% for

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Delegates at the Accenture's 'Skills to Succeed' graduation, part of the partnership with the KZN e-Skills CoLab.



Article continued: Multi-stakeholder collaboration for a developmental state



A student receiving his certificate at the Accenture's 'Skills to Succeed' graduation, part of a partnership with the KZN e-Skills CoLab and Durban University of Technology.

software testing delegates, 19% of the mobile application development delegates and 11% of the PHP delegates. The remaining are still interviewing for positions, with the KZN e-Skills CoLab working on placing these delegates.

"The overall feedback from students was positive. They were grateful to both Accenture and the CoLab for providing training of this nature and for assisting them to secure employment," says Dr Surendra Thakur, Director of the KZN e-Skills CoLab. "This is an example of how partners can work together in a multi-stakeholder collaborative platform, aligned to national priorities, to provide a measurable outcome." ✓

e-skills development & training

Local government collaboration to promote effective service delivery

KZN e-Skills CoLab trains more delegates in Higher Certificate in Public Administration (Public Participation)

An efficient, effective and development-oriented public service is one of the priorities of the Medium-Term Strategic Framework (MTSF) 2014-2019. This supports the National Development Plan (NDP) action "to professionalise the public service".

e-Enablement for Effective Service Delivery

The Institute (NEMISA changing to iNeSI) aligns its work to government policy, supporting the developmental agenda and developing human capacity in e-skills. Further to this, one of the core thematic focus areas is e-enablement for effective service delivery. This focus area is driven by the Institute's KwaZulu-Natal e-Skills CoLab: e-Enablement for Effective Service Delivery. (While it is a provincial CoLab, the aim is for e-skills interventions and programmes to have a national rollout.)

Public participation and active citizenry

The KZN e-Skills CoLab, based at Durban University of Technology (DUT), has been running the learning intervention 'Higher Certificate in Public Administration (Public Participation)' since 2015. Public participation is the process where an organisation consults with interested or affected individuals, organisations, and government entities before making a decision.

The work supports government policy, with particular reference to the NDP's promotion

of active citizenry and public participation: "Active citizenry and social activism is necessary for democracy and development to flourish. The state... has to act with the people, working together with other institutions to provide opportunities for the advancement of all communities."

Collaboration for impact

Collaboration is fundamental to delivering on the NDP, MTSF and other government policies. It is also fundamental to e-skilling South Africa, the mandate of the Institute. The Institute has a multi-stakeholder platform designed for collaboration with partners. Through collaboration, the Institute is able to support government, minimise duplication and increase impact.

The KZN e-Skills CoLab's development of the Higher Certificate in Public Administration (Public Participation) is an →

Delegates attending training for the KZN e-Skills CoLab's Higher Certificate in Public Administration (Public Participation).



Article continued: Local government collaboration to promote effective service delivery

example of the impact of collaboration. This is an ongoing partnership with the EtheKwini Municipality to deliver the year-long course to various municipal departments.

The departments include: Durban Solid Waste, Human Settlement, Community Participation, Expanded Public Works Programme, Water and Sanitation, Support Services, Disaster Management, Pools, Electricity, Safer Cities, Library and Development Planning.

KZN e-Skills CoLab's Higher Certificate in Public Administration (Public Participation)

The KZN e-Skills CoLab is now training 200 more delegates in the Higher Certificate in Public Administration (Public Participation). The programme is designed to create an understanding of the nature of community development and the critical role of public participation in the process. The focus is also on assisting individual employees to become more valuable resources for municipalities.

Delegates: There are 200 learners for each year-long course. The first group of 200 students ran from August 2015 to May 2016. The current group of 200 learners started in August 2016 and will complete the Higher Certificate in May

2017. The aim is to ultimately train 600 middle management government workers through the programme. The target audience is municipal employees, ward committee members and councillors.

About the qualification:

This is a formal DUT qualification and is a higher certificate NQF level 5 (aligned to the South African Qualifications Authority). It comprises both theory and practical skills. The programme and training is project managed by the KZN e-Skills CoLab.



Delegate response: "Our evaluation forms show positive feedback from the learners," says Dr Surendra Thakur, Director of the KZN e-Skills CoLab.

Future plans: The next group of 200 learners will start the learning intervention later in 2017 once the current cohort has completed the programme. ☑

The provincial e-skills CoLabs

The provincial e-skills CoLabs are based at universities. Each has a focus on a specific area in e-skills:

- **Western Cape e-Skills CoLab:** e-Inclusion and Social Innovation, based at the University of the Western Cape
- **KwaZulu-Natal e-Skills CoLab:** e-Enablement for Effective Service Delivery, based at Durban University of Technology
- **Eastern Cape e-Skills CoLab:** ICT for Rural Development, based at Walter Sisulu University
- **Gauteng e-Skills CoLab:** Creative New Media Industries, based at the National Electronic Media Institute of South Africa (NEMISA)
- **Limpopo e-Skills CoLab:** Connected Health, based at the University of Limpopo
- **Northern Cape/Southern Gauteng e-Skills CoLab:** e-Literacy and e-Business (knowledge economy and e-social astuteness), based at the Vaal University of Technology
- **North West e-Skills CoLab:** e-Agro-tourism, based at the North-West University



Contact The Institute

The Institute (NEMISA changing to iNeSI) can be contacted at the following:

- info@nemisa.co.za
- 011 417 5100 / 011 484 0583
- PO Box 545 Auckland Park, Johannesburg, 2006
- South Building Waterview Corner, 2 Oppenheimer Ave, Bruma Lake Office Park, Bruma 2026

The Institute's board members

Governance and the Institute

Biographies on the NEMISA board members



Professor Walter T Claassen, NEMISA Board Chairperson

Specialist skills: Prof Claassen has extensive experience in academia management, leadership and research. He has been actively involved in restructuring and innovation in the higher education environment. His expertise includes the current rethinking of universities regarding

alignment with the digital era and the digital economy, ICT, digital skills development, and human capacity development in the digital economy.

Highlighted experience and positions: He was Director of Research at Stellenbosch University and Vice-Rector (Academic) and Vice-Rector (Research). The Vice-Rector also acted as Chairperson of the respective Senate committees. This work involved developing the institution into one of the foremost research-intensive universities in South Africa. He has a long history with the e-Skills Institute, including as a Senior Researcher and a Management Committee member in the Research Network for e-Skills (ResNeS). He was also a Founding Member of the Academy for Science in South Africa.

Ms Nelisiwe 'Ncedi' Mkhaliphi, NEMISA Board Member

Specialist skills: Ms Mkhaliphi has extensive experience in the Human Resource (HR) environment. These range from HR management and organisation development to training and development and change management. She has further specialised in community facilitation and development.



Highlighted experience and positions: She has previously worked for Umsobomvu Youth Fund as Director: Human Resource Management. Ms Mkhaliphi also worked for the National Youth Development Agency (NYDA) in numerous positions, including Director: Human Resource Management and as Acting Executive Manager.

Mr Thami Ka Plaatjie, NEMISA Deputy Board Chairperson

Specialist skills: Mr Ka Plaatjie has worked extensively in the education sector. He is a specialist in historical research with reference to South African resistance politics, as well as heritage studies and political conflict models. Further experience includes current African political analysis and commentary, strategy development and community development.



Highlighted experience and positions: He was Campus Registrar: Academic and Administration at Vista University, as well as serving on the History Curriculum and Examining Committee. He held the position of Director: Policy and Strategy at the National Development Agency. He has also held the position of Secretary General of the PAC and President of PAM.



Mr Lucas Mello, NEMISA Board Member and Chairperson of the Human Resources and Remunerations Committee

Specialist skills: Mr Mello has extensive experience in the education field. This ranges from teaching to high-level educational strategy and management. Further expertise includes high-level dispute resolution, high-level negotiation, statute interpretation and an understanding of a vast range of legislation.

Highlighted experience and positions: He worked for the Mpumalanga Department of Education, assisting with the transition and integration after the 1994 democratic elections. He was appointed Regional Director (Nkangala) at the Mpumalanga Department of Education. He also held the position of ANC Mpumalanga Provincial Secretary.



Article continued: **Governance and the Institute**



Professor Manoj Maharaj, NEMISA Board Member and Chairperson of the Finance Committee

Specialist skills: Prof Maharaj is an academic of more than 27 years. He has extensive experience in the management and leadership of higher education and training institutions. This includes legislation policies and procedures related

to state-owned enterprises. He has a deep knowledge of the ICT sector and has researched and published extensively in this domain.

Highlighted experience and positions: He has been in various management and strategic positions at the University of KwaZulu-Natal (UKZN). This includes serving on the UKZN Council and the UKZN Senate. He was Chairman of the Board of Trustees of the University of Durban-Westville Pension and Provident Fund. Previous experience includes consulting to the Botswana Qualifications Authority around developing the Botswana National Qualifications Framework.



Mr Phuti Phukubje, NEMISA Board Member and Chairperson of the Audit and Risk Committee

Specialist skills: Mr Phukubje is an approved accounting officer and business accountant (SAIBR 151) as registered by the South African Institute of Business Accountants. He has an extensive technical knowledge in auditing, financial management, accounting and taxation.

Highlighted experience and positions: He worked in numerous positions for the Auditor General South Africa, culminating in the position of Senior Manager (partner). He also has international auditing experience with the United Nations Fund for International Partnership.

Ms Thandiwe Mfulo, NEMISA Board Member and Chairperson of the Programme and Academic Committee

Specialist skills: Ms Thandiwe Mfulo is a woman with disability and has been involved in representing disabled people both in South Africa and internationally. Her government and civil society experience is evidence of her experience with high-level management, monitoring and evaluation and leadership.



Highlighted experience and positions: She was a member of the 4th Parliament on the Select Committee on Appropriation, Select Committee on Auditor General, and the Portfolio committee on Monitoring and Evaluation. She was also a Municipal Councillor for the Sol Plaatje Municipality. She has been Provincial Treasurer for Cosatu and Provincial Chairperson for the South African Women Entrepreneur Network. She was previously a Board Member for the Northern Cape Development Trust.

Sarienne Rana Kersh, NEMISA Board Member and Chairperson of the Social and Ethics Committee

Specialist skills: Ms Kersh is a Qualified Assessor and Facilitator (Level 5 – Outstanding Achievement) for MICT SETA for various film and TV qualifications and screenwriting qualifications. She has extensive experience in film, TV, video and animation. This is on numerous levels from producing and script writing to training and development of learning material and curricula.



Highlighted experience and positions: While at Digital Arts, she was the Festival Director of the first International Animation Festival in South Africa with 13 countries participating. She has a history with NEMISA as a Senior Lecturer and as Acting Head of the TV Department and Internal Moderator for the Animation Department. ☑

About the Institute

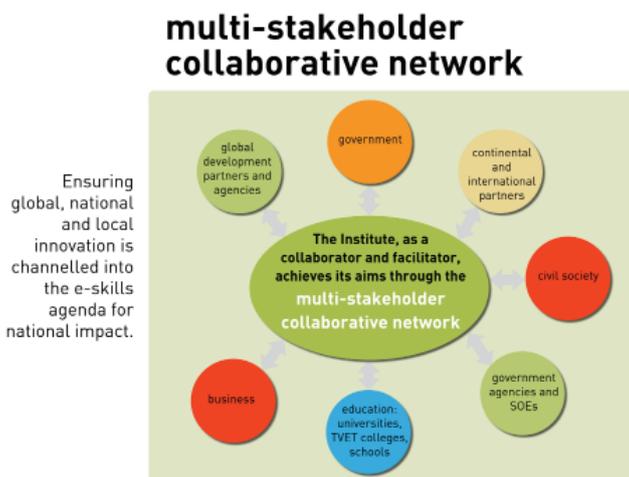
Unite around a common pillar to fight poverty and inequality, active citizenry, an inclusive economy, building capabilities, a capable developmental state and leadership working together to solve problems

The Institute (NEMISA changing to iNeSI) is a globally-recognised collaborative model that allows stakeholders to sustainably meet South Africa's e-skilling objectives.

The 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 implementation, to benefit the total population.

Alignment to government policy: These objectives are aligned to the new broadband policy, South Africa Connect, and the National Development Plan 2030, among other national and international goals.

Multi-stakeholder collaborative platform: The Institute provides a formal multi-stakeholder collaborative platform that aligns all stakeholders (business, government, civil society and education) with a common vision. This common vision ensures that e-skills initiatives are coordinated within a national framework, reducing duplication and increasing impact.



Five focus areas: The Institute primarily focuses on five components.

- Knowledge for innovation (research)
- e-Astuteness (teaching and learning)
- Multi-stakeholder collaboration
- Innovation
- Aggregation (monitoring and evaluation framework)

Providing national, provincial and community level access: The Institute is organised on a national level, a provincial level and a local community level. The Institute's central office coordinates nationally and globally.

Join The Institute's network

As a national catalyst for the development of e-skills in South Africa, The Institute (NEMISA changing to iNeSI) calls on e-skills stakeholders to become involved in the integrated approach to e-skills development through our multi-stakeholder collaborative network.

Contacting The Institute

For more information, contact info@nemisa.co.za.

The e-skills knowledge production and coordination CoLabs (e-skills CoLabs): These are situated at universities, with one in each province. There are currently six e-skills CoLabs:

- Western Cape e-Skills CoLab: e-Inclusion and Social Innovation, based at the University of the Western Cape
- KZN e-Skills CoLab: e-Enablement for Effective Service Delivery, based at the Durban University of Technology
- Eastern Cape e-Skills CoLab: ICT for Rural Development, based at Walter Sisulu University
- Gauteng e-Skills CoLab: Creative New Media Industries, based at NEMISA
- Limpopo CoLab: Connected Health, based at the University of Limpopo
- Southern Gauteng/Northern Cape CoLab: e-Literacy and e-Business (Knowledge Economy and e-Social Astuteness), based at the Vaal University of Technology
- North West e-Skills CoLab: e-Agro-tourism, based at North-West University

There will ultimately be nine e-skills CoLabs correlating to the nine South African provinces.

The e-skills CoLabs provide knowledge spaces for collaboration at a provincial level.



Article continued: Information on The Institute

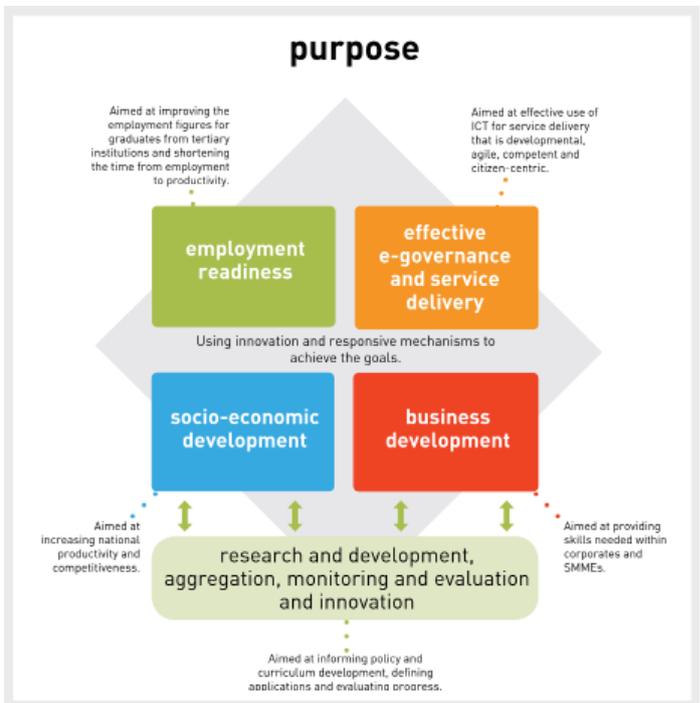
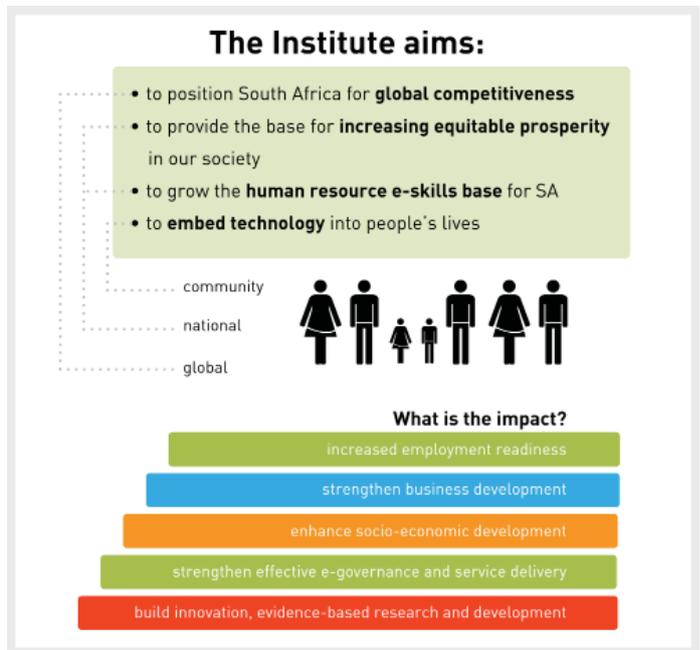
Smart community knowledge production centre (smart centre): These allow for interaction and coordination at a local community level. The Institute's smart centre network is currently being developed across the country.

The Institute's national Research Network for e-Skills (ResNeS) is a multi-stakeholder collaborative network that focuses on knowledge for innovation (research).

NDP Priority Areas supported by NeSPA 2013
Pillar 1: Unite around a common pillar to fight poverty and inequality
Pillar 2: Active citizenry
Pillar 3: Inclusive economy
Pillar 4: Build capabilities
Pillar 5: A capable developmental state
Pillar 6: Leadership throughout society to work together to solve problems

Wide-ranging opportunities for business: The Institute's positioning and organisational model provides numerous opportunities for businesses to engage effectively within the e-skills space:

- There is high-level government engagement. This is integral to developing the e-skills agenda and ensuring that national and provincial policies, as well as all stakeholder decisions, reflect a common goal.
- Business corporate social investment (CSI) has an elevated impact that is aligned with national priorities. The elevated impact and the high-level government engagement allow businesses to position their individual CSI initiatives prominently to their stakeholder base, including the media.
- Businesses are given the opportunity to showcase their talents nationally, provincially and locally.
- Because of the inclusive national priority alignment within the Institute's multi-stakeholder collaborative network, businesses are able to position their work within a local context and a developing country framework.
- The link that The Institute has with universities through its CoLabs and ResNeS means that business can also align new approaches using the benefits of an academic environment and a research function.



- Most importantly, the Institute provides an environment where CSI is part of a model where stakeholders work together – 'doing with' and not 'doing for'. ☑

Taxonomy for e-skills

An e-skills taxonomy is more than just definitions. The e-skills agenda requires a shift in thinking with outcomes such as changes in policy. The terms used are part of creating the environment for this shift. Following are definitions for some of the words that form part of the e-skills taxonomy.

e-Astuteness	<p>The capacity to continuously appropriate the technology into personal work, education, business, social and family contexts for both personal and collective benefit.</p> <p>e-Astuteness is defined as a knowledgeable capacity, based on personal and interpersonal skills, that involves:</p> <ul style="list-style-type: none"> • Understanding people and situations • Building alignment and alliances • An acute understanding of strategic direction • Applying strategic behaviour <p>e-Astuteness allows individuals to take personal advantage of ICT in social or economic situations, through the appropriate e-skills. (Building social connections is an example of a social situation and obtaining a job or starting a business is an example of an economic situation.)</p> <p>e-Astuteness does not necessarily depend on formal education or high levels of literacy.</p>
e-Literacy (digital literacy)	<p>e-Literacy (digital literacy) is the ability of individuals to use digital tools and facilities to perform tasks, to solve problems, to communicate, to manage information, to collaborate, to create and share content and to build knowledge, in all areas of everyday life and for work.</p>
e-Skills	<p>The ability to use and develop ICTs within the context of an emerging South African information society and global knowledge economy, and associated competencies that enable individuals to actively participate in a world in which ICT is a requirement for advancement in government, business, education and society in general.</p>
e-Social astuteness	<p>e-Social Astuteness is defined as the use of ICT and e-skills for more astute ways of people interacting with others, which include:</p> <ul style="list-style-type: none"> • Social interactions • A level of awareness and understanding of diverse social situations • The various alternatives open to them for response <p>e-Astuteness focuses on individual benefit whereas e-social astuteness focuses on interacting with others for group benefit.</p>

What is an e-skill?



Official South African definition (from the National e-Skills Plan of Action)

The ability to use and develop ICTs within the context of an emerging South African information society and global knowledge economy, and associated competencies that enable individuals to actively participate in the world in which ICT is a requirement for advancement in government, business, education and society in general.

Partners in the Institute's multi-stakeholder collaboration

Education



Government/South Africa



Civil society



Business



Global developmental partners



Kenya



Rwanda