

**Interactive Technology in Education - conference**

**5 – 7 April 2006, Hämeenlinna, Finland**

***ICT research and innovation in South Africa***

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**Laurens Cloete**



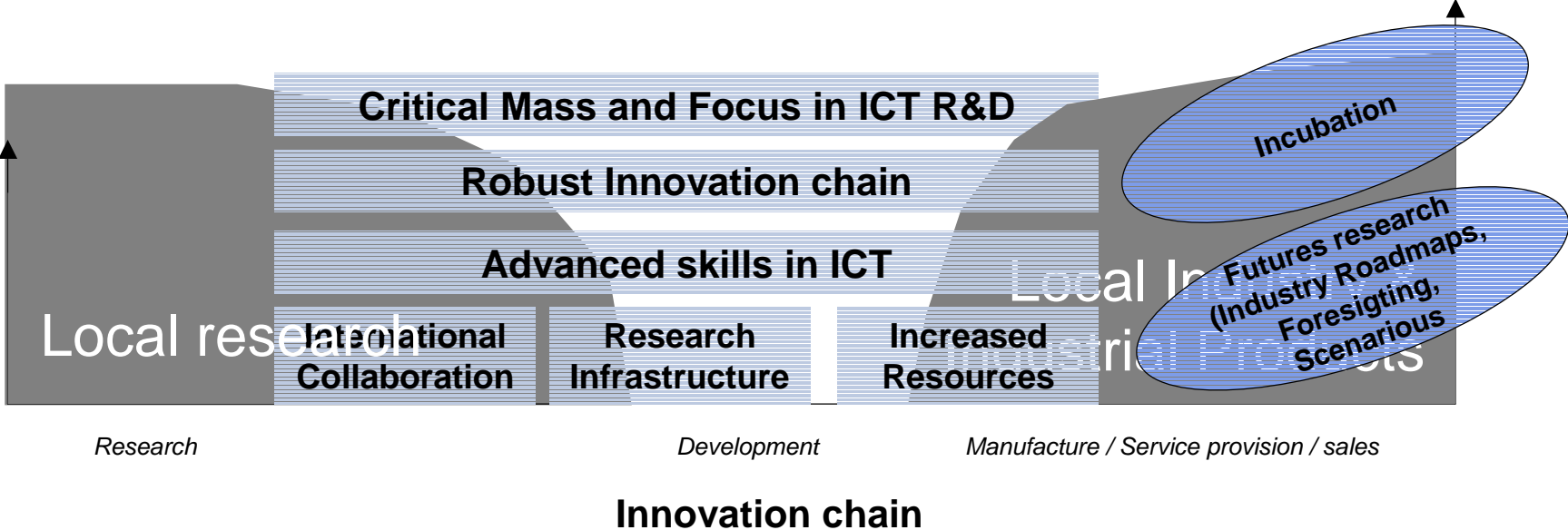
**meraka**  
I N S T I T U T E

# Presentation Outline

- Background on ICT Innovation in South Africa
- The role of the Meraka Institute
- ICT R&D and Innovation cooperation between South-Africa and Finland



# Innovation Chasm & Interventions



# Meraka Institute

- The Meraka Institute derives its mandate from President Mbeki's 2002 State of the Nation Address as a national strategic intervention in the South African ICT R&D and Innovation space
- Collaborative initiative driven by government with private sector, higher education and civil society
- The Meraka Institute will develop world class *human and intellectual capital* for the benefit of the *economy* and to improve the *quality of life* of the people of South Africa and the Continent by undertaking and facilitating world class, needs-based research and innovation in ICT



# Critical mass and focus in ICT R&D

- Enabled through different mechanisms such as *research groups* and *research networks* using the Meraka Institute to create, harness, and strengthen R&D capacity in specific domains
- Examples of Critical Mass R&D initiatives:
  1. Seeding critical mass in 3 ICT R&D areas
    - Geomatics and spatial technologies
    - Wireless Access Technologies
    - ICT in Education
  2. National Human Language Technology (HLT) Network
  3. Center for High Performance Computing



# Seeding Critical mass in Wireless Access Technologies Research Scope

- Scalable & affordable infrastructure:
  - Generalized internetworking (internetworking across business domains)
  - New technologies for low cost infrastructure – self-configuring/user deployed systems
  - More spectrum efficient transmission - Smart antennas
  - Ad-hoc networking – improving coverage in a self-configuration fashion
  - Efficient wireless media delivery including high quality audiovisual applications
- Usability/Complexity management:
  - Adaptive and usable services key to future systems adapting to user preferences, environments and instantaneous access network
  - Design of large scale fine-grained interactive systems supporting complex systems ubiquitous computing systems
  - Secure and integrity preserving ubiquitous computing
  - Effective management of networks and services
  - Low power – low radiation systems
- Policy, regulatory and business models for wireless services and infrastructure:
  - Interfaces between actors (operators, regulators, suppliers, etc)
  - New spectrum management including User-centric/Non-cooperative resource management
  - Novel Access Provisioning technologies & business models
  - Policy & regulation issues
  - Impact on innovation system



# Seeding Critical mass in ICT in Education: Research areas

- Advanced infrastructure to support education (next generation networks, devices, services)
- Multimedia- and multimodal-enhanced learning environments
- Application of human language technologies in education
- Virtual reality in education
- Computer games that support learning and educational content development
- Mobile learning environments
- E-learning solutions and platforms (using advanced cognitive science and learning theory)
- Sophisticated educational technology platforms (learning objects, object repositories, collaborative learning environments, etc.) to support learning, instructional design and content-creation
- Robotics and other technology building-blocks to support hands-on learning (particularly in the fields of computer science, engineering and mathematics)



## 2. Innovation in ICT for public good

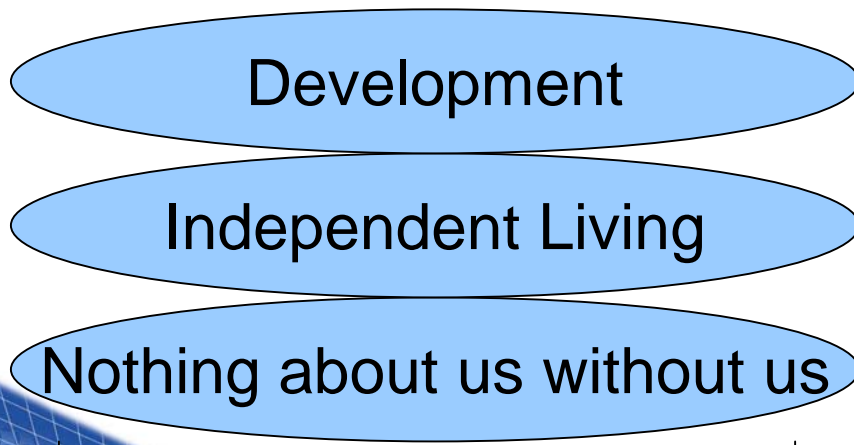
- Topics identified based on National priorities such as education, health, services delivery etc.
- Programme of projects conceptualised with intended beneficiaries and stakeholders
- Futures research techniques applied to develop innovation roadmap
- Examples of Innovation initiatives:
  - Digital doorway
  - National Accessibility Portal



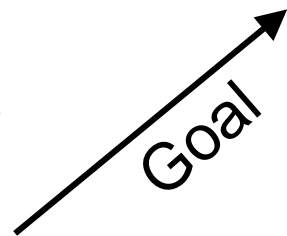
# Digital Doorway – CSIR, DST & ESKOM partnership on ICT access and computer literacy



# National Accessibility Portal (NAP) Holistic Development



Principles



- Job Creation
- Poverty Alleviation
- Economic Sustainability
- Co-ordination of Services
- Cohesion of Services

# SA – Finland Collaboration programmes

- Programmes co-sponsored by Finnish ministry and South African government departments - Department of Science and Technology and Department of Communications
  - COFISA – Cooperation Framework programme for Finnish SA Innovation Systems development
  - Meraka programme knowledge partnership on ICT
  - Programme for Capacity building in information society strategy development – Department of Communication



# SA – Finland Collaboration projects

- Projects that will be undertaken under Meraka knowledge partnership programme:
  - Mobiled - enhancing learning and teaching environments with mobile technologies and services
  - Women in Information and Communication Technologies Project (WICT)
  - Kidsclub / SUN2ICE
  - Futures research - Finland Futures Research Centre Turku
  - Information Society for development project – modeling the information society in three provinces
  - Joint project between South Africa and Finland on Design for All and Accessibility to enhance Information Society in South Africa
- Rural mobile telephony – Nokia

# Mobiled

- Aim - design of learning and teaching environments that are enhanced with mobile technologies and services
- Principle partners:
  - **Meraka Institute** South Africa
  - **Media Lab** of the University of Art and Design Helsinki, Finland.
- MobilED KIT – a box with mobile tools, software and a guidebook that a teacher can use in a classroom or club to carry out collaborative mobile learning projects.
- MobilED SERVER – a technology platform that makes it possible to take most out of the MobilED KIT. Governments, organizations or operators willing to support the use of mobile phones in collaborative learning projects may install the technology platform.



# Conclusion

- Mechanism exist to enable SA-Finnish collaboration
- Primary focus on ICT Innovation for Pubic good – ideas, technology, applications
- Supported by specialised technology expertise



# Thank You

Laurens Cloete  
Meraka Institute  
[jcloete@csir.co.za](mailto:jcloete@csir.co.za)

