



# *Exploiting Research INfrastructures potentiAl for boosting Research and Innovation in Africa*

## **Work Package 1: Fact-finding *Existing and Potential e-Infrastructures***

KTH: Björn Pehrson, Ubuntunet Alliance: Margaret Ngwira  
ENG: Maria Antonietta Di Girolamo, Isabel Matranga



# Focus and Methodology

- Scientific focus: Applied research supporting development towards the knowledge society, especially governance, education and health-care.
- Geographical focus: Countries with active NREN communities
- Lighthouse demonstrators illustrating return on Investment, including innovation potential
- Fact finding by contacting funding agencies, personal contacts and survey via the web.
- Report is available at [www.erina4africa.eu](http://www.erina4africa.eu)

# The supply side: e-Infrastructure technologies

- High performance networks
  - The PanAfrican e-Network project
  - Dedicated Research and Education Networks (RENs)
- High performance computing
  - Computing resources dedicated to research and education
  - Commercial computing services based on Cloud Computing
- Education and Training Usage of e-Infrastructures

# INDIA

IIT, Kanpur  
University of Madras  
Delhi University  
IGNOU, Delhi

IISc, Bangalore

BITS, Pilani

AMITY University, Noida

AIIMS, Delhi

FORTIS Hospital, Noida

ESCORTS HIRC, Delhi

Narayana Hrudayalaya, Bangalore

Mool Chand Hospital, Delhi

SMC, Ghaziabad

CARE Hospital, Hyderabad

AMRITA IMSRC, Kochi

HealthCare Global, Bangalore

Apollo Hospitals, Chennai

DATA CENTRE Delhi



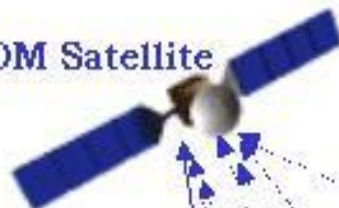
Back-bone Link

Landing Station, India

IPLC

Landing Station, Africa (DAKAR, SENEGAL)

RASCOM Satellite



HUB Station



# AFRICA

- 53 Learning Centres
- 53 Patient-End Hospitals
- 53 VVIP Nodes
- 5 Regional University Centres
- 5 Regional Super Specialty Hospitals

ARCHITECTURE OF PAN-AFRICAN e-NETWORK

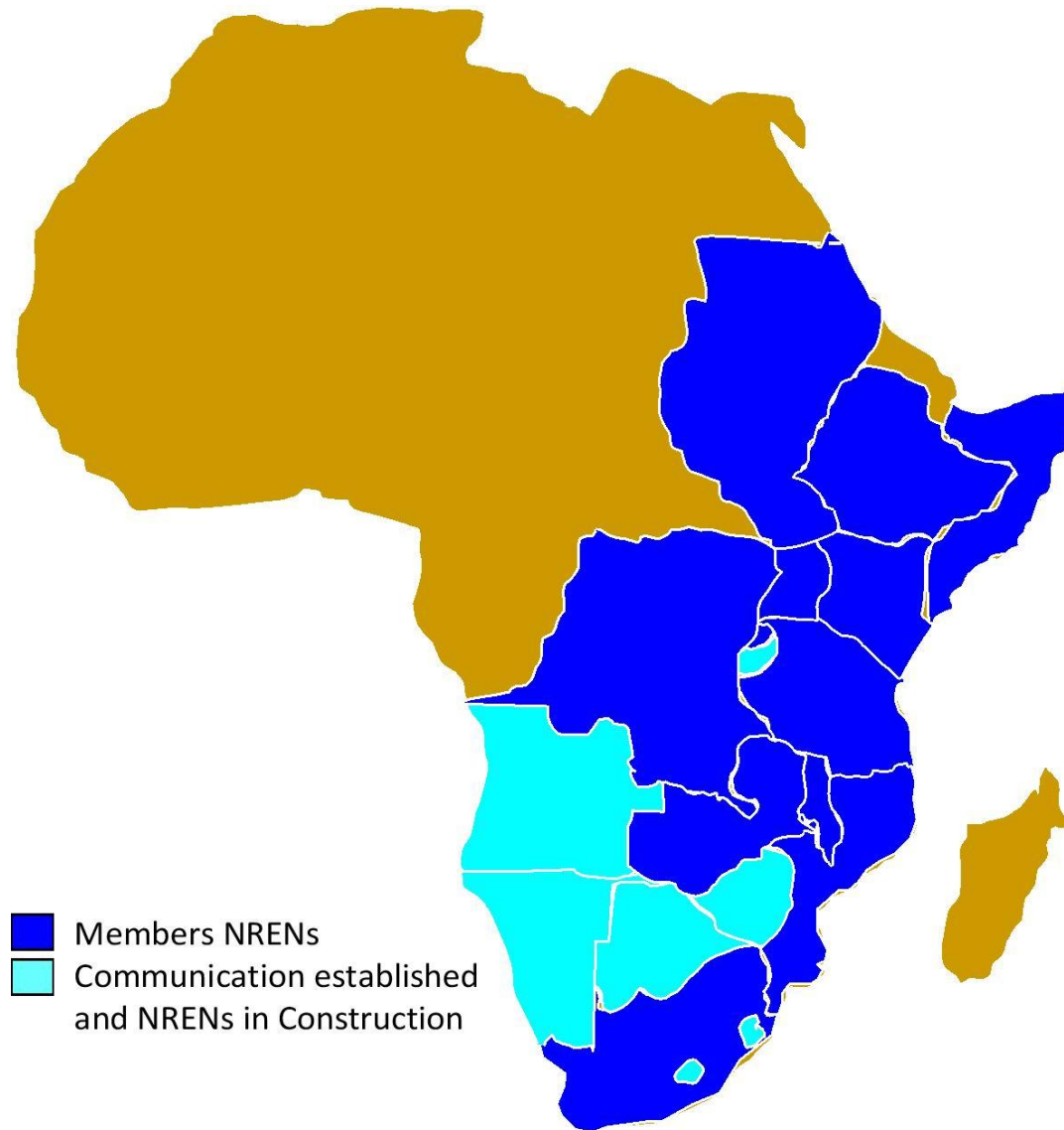
# Dedicated Research and Education Networks

***ASREN***

***Ubuntunet***

- SUIN
- Ethernet
- SomaliREN
- KENET
- RENU
- Rwednet
- TERNET
- EBALE
- ZAMREN
- MoRENnet
- TENET

***WACREN***  
Task Force



- Members NRENs
- Communication established and NRENs in Construction

# Computing resources

- Dedicated to research and education
  - Centre for High Performance Computing (CHPC) in Cape Town, South Africa
  - Supercomputer donated by ICTP to AAU, Addis Ababa
  - PARAM computers donated by India to Tanzania (DIT)
  - Rwanda National Computer Center in Kigali
- Education and Training in Grid Computing (EPIKH)
- Commercial cloud computing services

# Demand side: Governance

- Long term strategic development
  - Ethiopia ICT Development Agency, Kenya ICT Board, Rwanda Development Board/IT
  - NICI plans, Science, Technology and Innovation Parks
- Rationalisation of the government functions and work procedures
  - Soft infrastructure: databases for population, land, etc
- Services to the citizens

# Demand side: Research and Education

- Research and higher education
  - AAU (DATAD), SARUA, IUACEA, ...
  - RUFORUM
- Primary and secondary schools
  - NEPAD, GeSCI eSchools programmes
  - OLPC, Global Development Commons
- Technical Vocational Education and Training (TVET)
- Continuing Education

# Demand side: Healthcare

- Large development programmes
  - WHO, INDEPTH, PEPFAR, HEALTH, LIPHEA
  - Cooperation between hospitals
- Development projects
  - ICT4MPOWER in Uganda, ICT4RD in Tanzania
  - MRI Lab in Malawi
  - MLW Patogen Genomic Studies in Malawi
  - HPLC lab network, Kampala, Dar
  - Drug information and monitoring of distribution and use (TRAC Plus, Drugle)
  - E-Learning for medical students in Rwanda

# Key Questions (So far!)

- Emerging best practices for creating applications
  - What are the key lighthouse demonstrators (application examples)?
  - Is it possible to produce e-Infrastructure templates (e-Infrastructure/application development) supporting key application areas?
- What key strategic e-Infrastructure links could be sustainably forged between Africa and EU
  - Which African and EU e-Infrastructure projects could be linked
- What educational support is needed?
  - How can African and EU partners cooperate to develop application development programmes
- What is the best form of knowledge sharing
  - Continuous e-Concertation?
- Is it possible to identify leading candidates to take forward as proposals for funding?