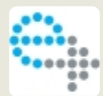




The Approach

Objective

Can e-Infrastructures add value to society in Africa in target societal applications



Government



Health



Learning



Qualitative and Quatitative

- Analyse the **strengths, weaknesses, opportunities** and **threats** of e-Infrastructure adoption
- Measure the **impact** of e-Infrastructure adoption on the basis of financial and social indicators



The Process

Step one - Context analysis

- Looking into the African context
 - Drawing on the experience of ERINA4Africa partners in Africa
 - Drawing on literature of other similar analyses (e.g. FEAST and NICI)



Step two- Collection of projects

A snowball effect process



- The **Virtual Observatory** maps the e-Infrastructure Ecosystem by collecting all projects identified

Step three – case studies selection and data gathering

Case studies selection criteria:

- Transnationality
- Working on more than one beneficiary/user typology
- Availability of data and willingness to engage in ERINA4AFRICA research

Data gathering process:

- Analysis of available documents (project fact sheet, websites, and other)
- Preliminary questionnaire
- In depth questionnaire

The case studies

- Africa4all
- AgShare Planning and Pilot
- Baobab Health Trust
- CARENET
- CSD4dev – Communication Systems Design for Development
- Magnetic Resonance Imaging (MRI) in Malaria Research
- Information System for risk management via remote detection (SIMART)
- Virtual-Land Computer System (VCS)
- Centre of Excellence in ICT (CoEICT)-Param Serengeti Supercomputer
- Malawi COM CPD
- Piloting Solutions for Reversing Brain Drain into Brain Gain for Africa: Use of grid and cloud computing applications as technical interventions to manage brain drain dynamics
- NAPRECA

Domain of application

Domain of application	N. of projects
e-Learning	11
e-Health	9
High Performance Supercomputing	1
e-Government	6
Participatory Policy Making, Capacity Development	3

Each project can work on more than one domain of application

Case study example: VCS (Virtual-Land Computer System)

The main objective of this project is the simulation of real processes in a virtual model. It designs Methods for Information Systems to improve the allocation of fundings and provide a more effective instrument for the state, scientific and business communities, aiming at balancing the repartition of socio-economic resources. The forecasted number of interested people is: 300 ministers, 300 doctors, 500 students.

Connection to e-Infrastructure: the project will reach a larger number of users and connect a higher number of researcher.

Foreseen economic benefits

- Improve the allocation of funding from the state and NGOs
- Develop an ICT-based tool for state, researcher and enterprises' needs
- Balancing the repartition of socio-economic resources

Major strengths

- Modelled image of society
- Multi-staholders basic information service
- Transversal virtual environment of exchange
- Simulations of real processes in a virtual model

Case study example: MRI – Magnetic Resonance Imaging in Malaria Research at Malawi College of Medicine

This project aims at using e-Learning approaches to build capacity for Health Care Professional Education in Malawi and to indentify, map and transfer the range of skills, resources and experience available at international level to Malawi. The project plans to involve 500 students, 1500 health workers and the wider population.

Foreseen economic benefits

Making available MRI service to a wider number of citizens thanks to telemedicine
Improve the life condition of the population
Attract more researcher in the field
Expanding the research area with different geographical aspects

Major strengths

Integration of different technologies
Relevant improvement in the provision of basic health services for endemic diseases
Public/Private partnership

Step four- projects' **impact assessment** through the application of the ERINA methodology

The ERINA Methodology 1/2

The indicators used are related to:

- **Economic efficiency** - to collect the best combination of human and non-human resources from the point of view of costs-benefits ratio
- **Operational efficiency** - to establish the capacity of internal staff of the project or service to reach the set goals in the best way
- **Benefits of being connected with e-Infrastructures** - Expected impact generated by the possible connection with existing e-Infrastructures

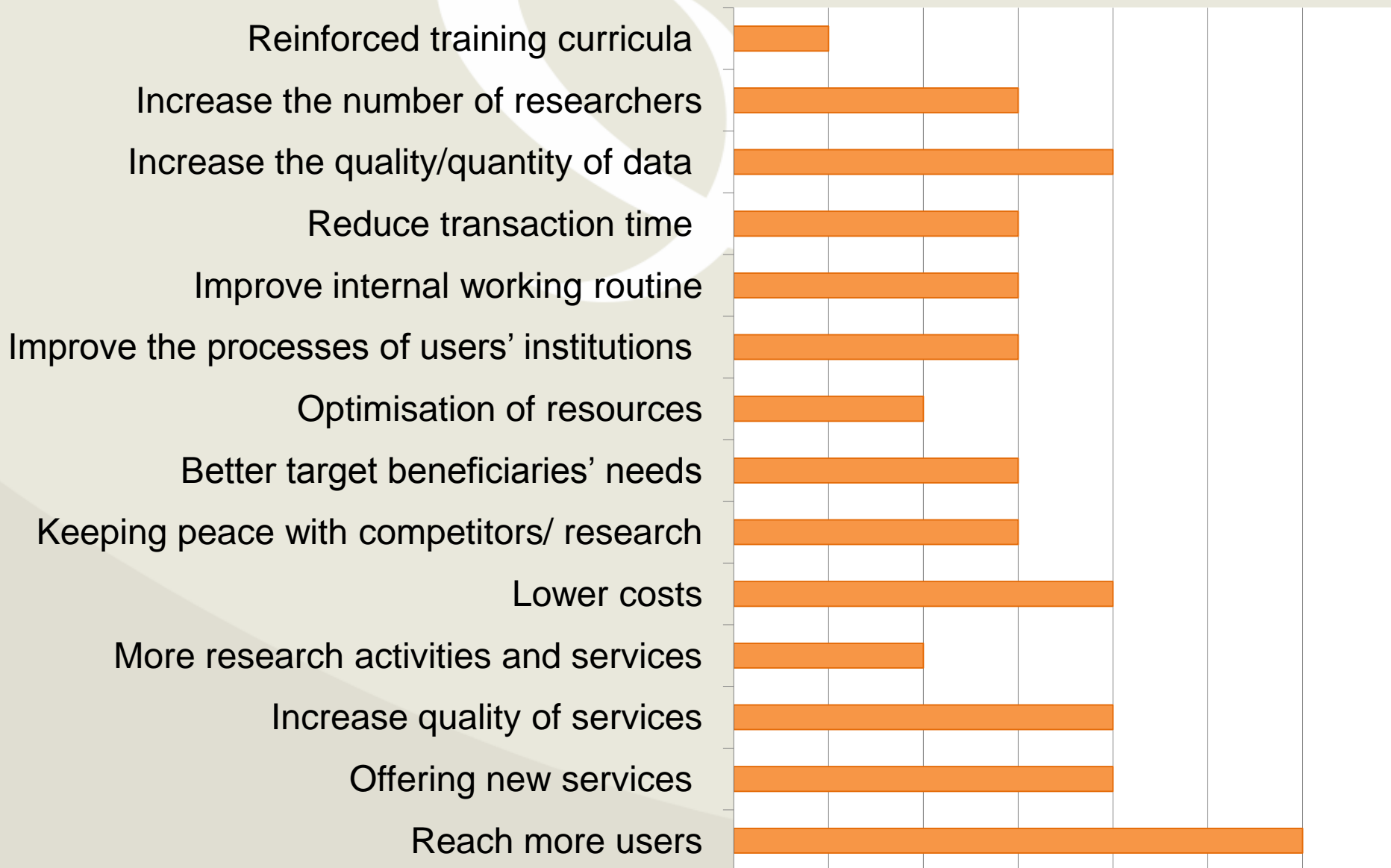
The ERINA Methodology 2/2

- **Knowledge production and sharing** - measures scientific production, sharing of knowledge and participation to Global virtual communities.
- **Social impact** - Impact on employment, social capital and trust in local actors
- **Environmental impact** - to establish the environmental impact of the project in terms of savings and of physical impact
- **ICT Friendly** - reduction in infrastructure costs and better users experiences

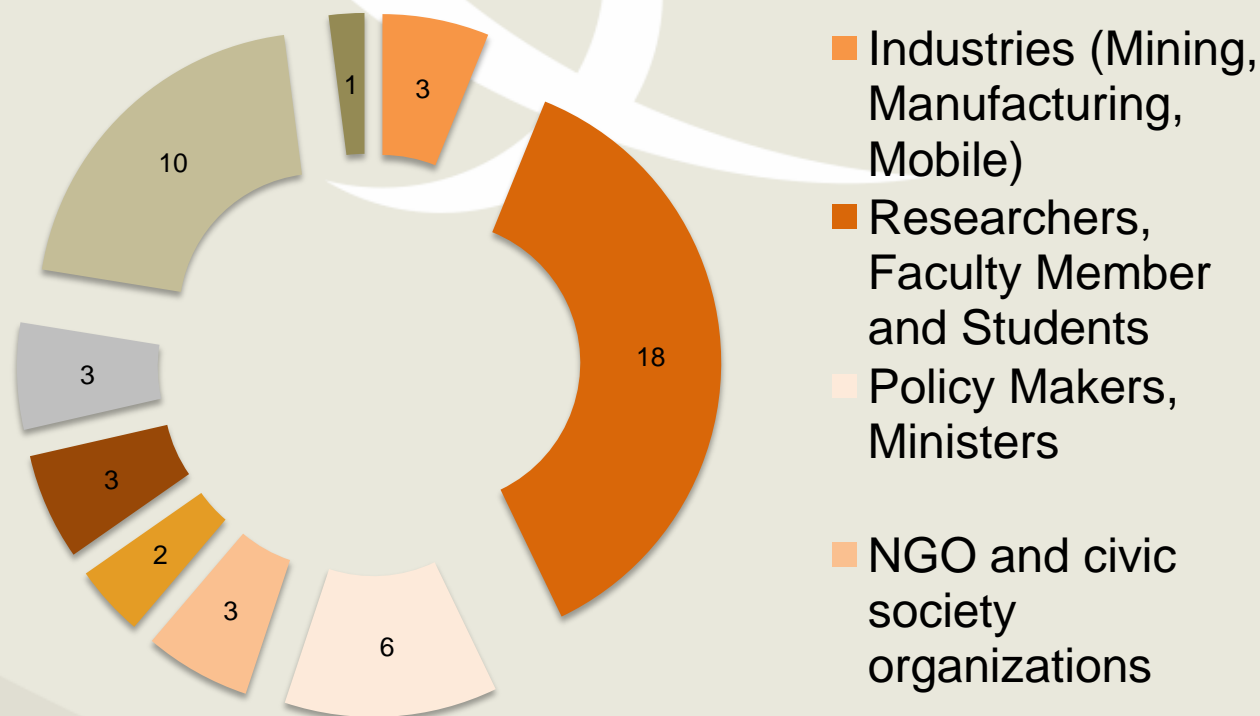


The Results

Projects' benefits

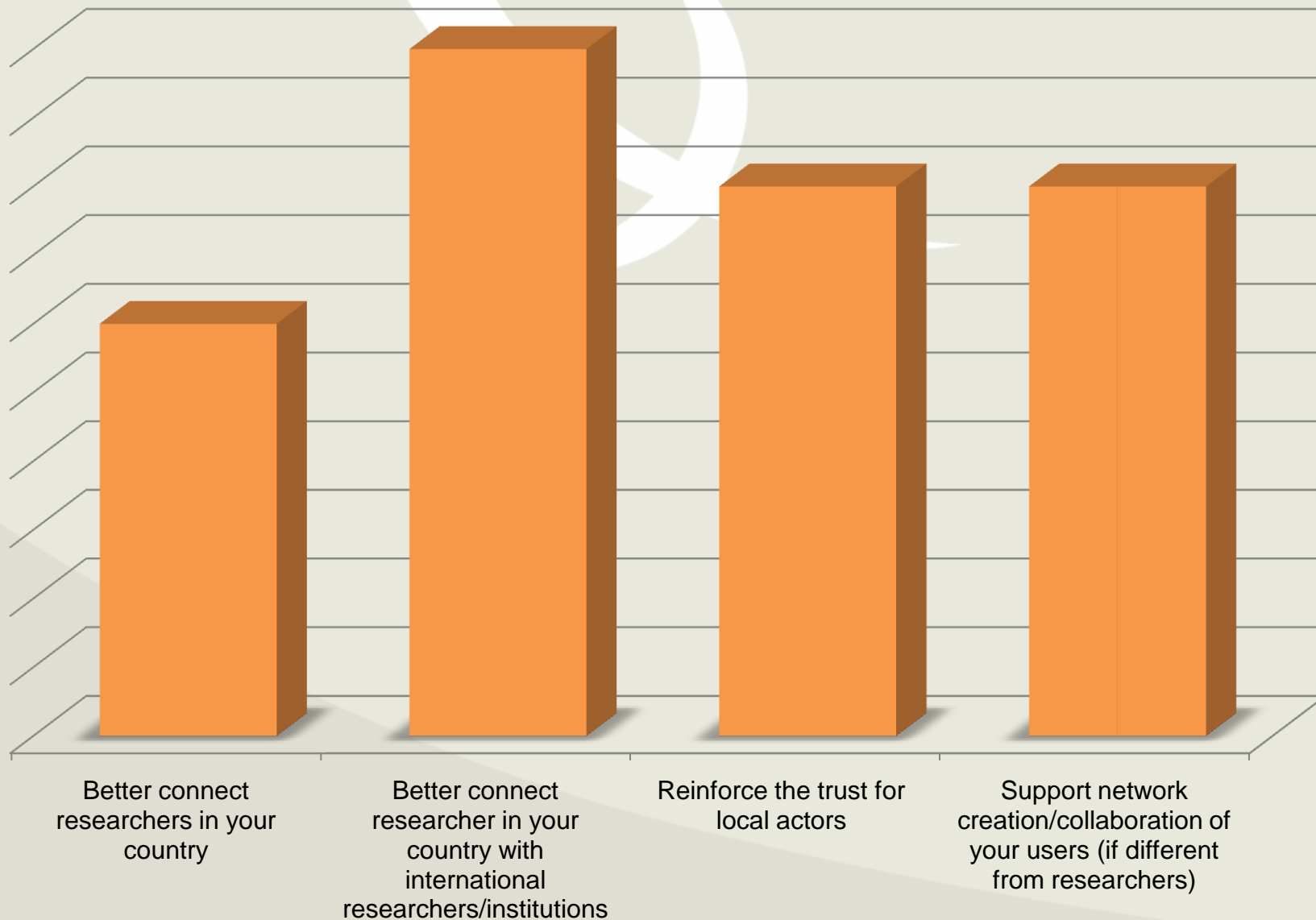


Project beneficiaries

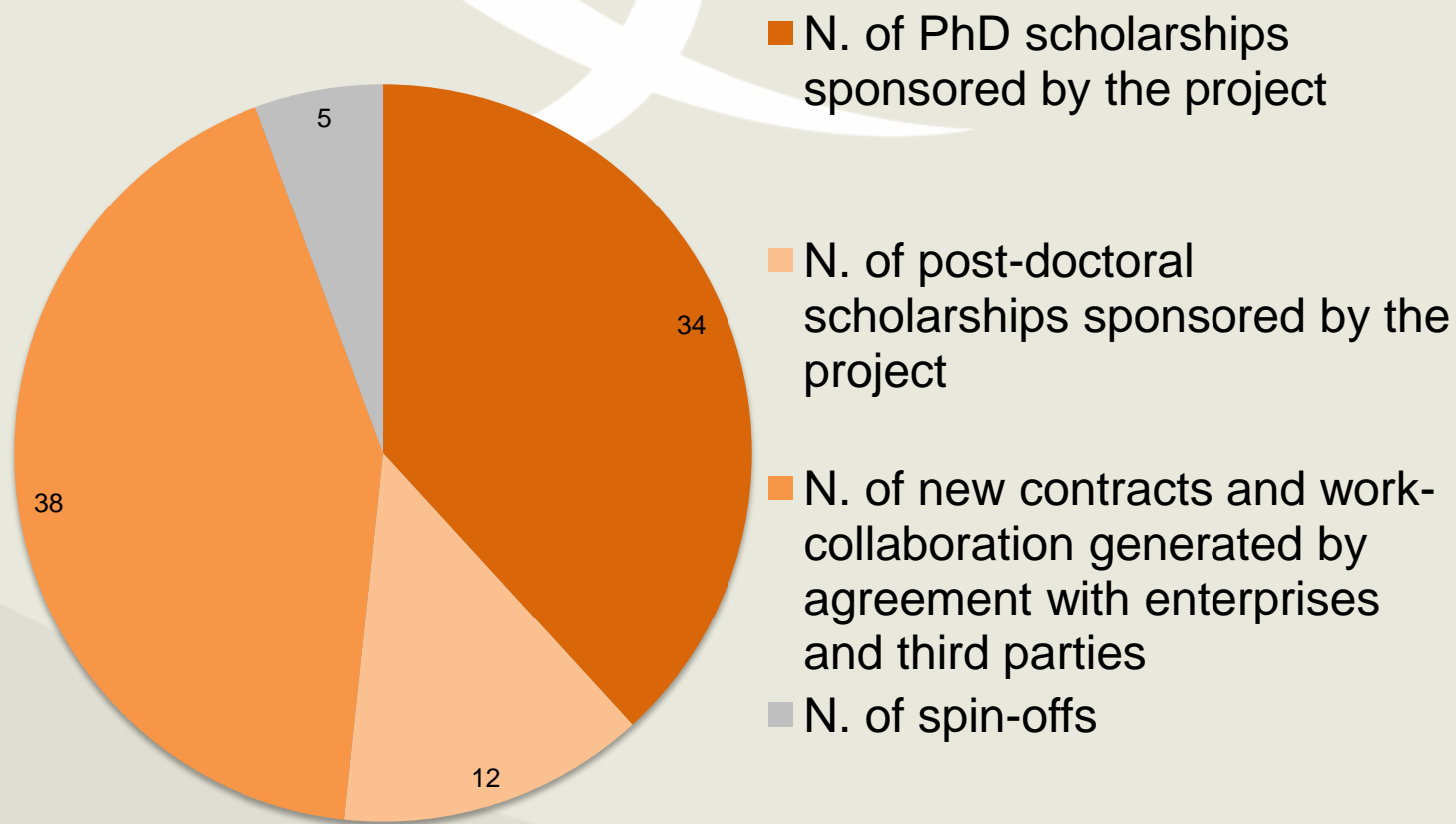


Data is related to the number of projects working on each typology of beneficiary. More than one answer was possible

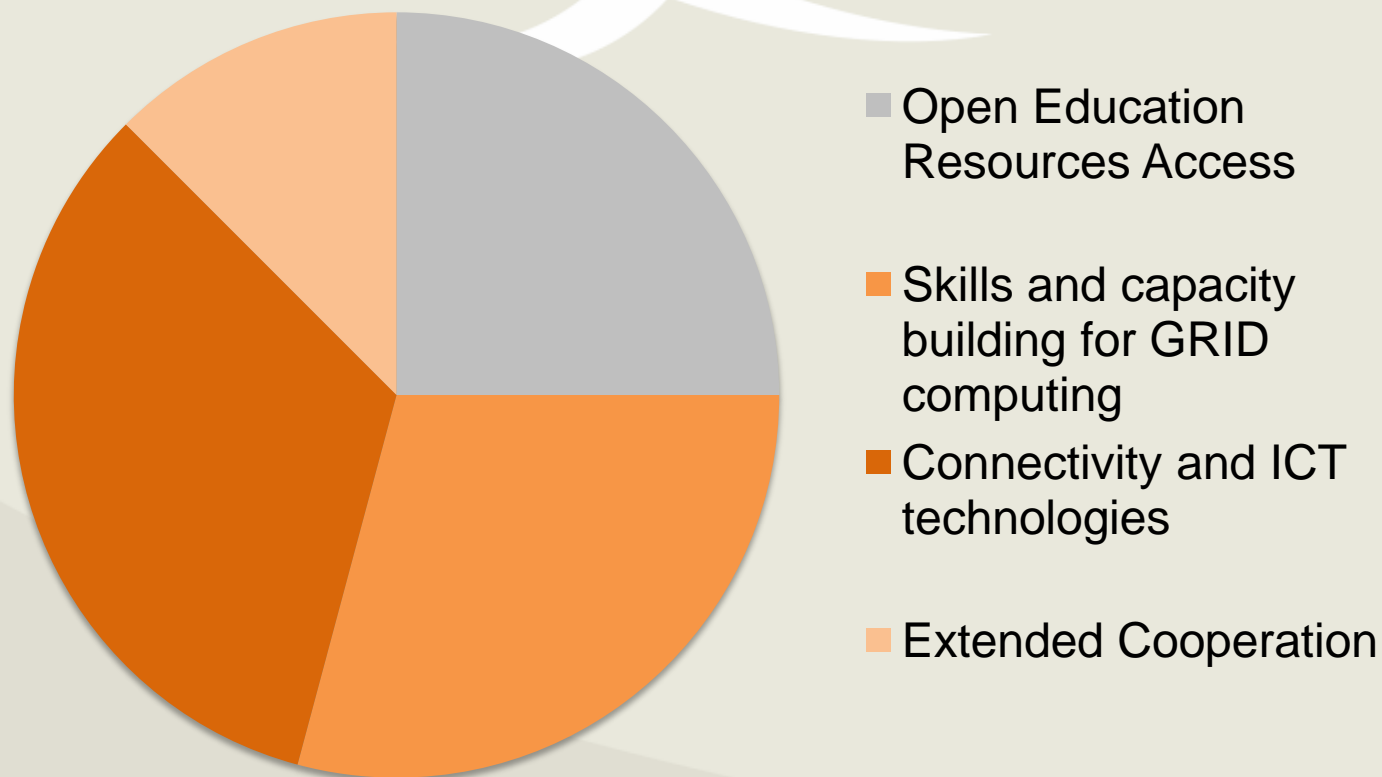
Expected impacts on local social capital



Expected impact on employment and commercial opportunities



Main benefits in connecting with existing e-Infrastructures



More benefits in connecting with existing e-Infrastructures

- Quick access to Open Educational Resources (OER) and to Content/Materials that fill critical resource gaps in African MSc agriculture curriculum.
- Quality of the multimedia data and speed of accessing the services.
- Sharing of resources, use of distributed intelligence, extended collaboration
- Clinical skills would be enhanced. Innovations would be easily adopted. Great diseases management should improve.
- VSATs elimination and costs diminution. Real-time connectivity would improve efficiency and quality of research.
- Better sharing of information.
- Easier report-generation.
- Capacity building for grid and cloud computing.
- Increase of humanitarian cooperation at very limited cost.



The Recommendations

Build a Human Infrastructure as well as a Technological one

Identify and support targeted communication activities involving multidisciplinary audiences, focusing on the establishment of specific e-Infrastructures.

Bring an early engagement of communities and help build knowledge and solutions with a focus on supporting social and economically sustainable growth.

Sustain a programme for promoting and implementing Lighthouse Demonstrators

The planning of e-Infrastructures for new virtual research communities should start immediately to become available as AfricaConnect improves connectivity.

The case studies analysed by ERINA4Africa can all be turned into Lighthouse demonstrators. These are early adopters of e-Infrastructure or e-Infrastructure-related technologies in Africa which create a showcase to fully demonstrate the impact and benefits of the adoption of advanced technologies in the three information society key areas (e-Health, e-Government, e-Learning).

Euro-Africa twinning and partnerships

Encourage established European and emerging African e-Infrastructure communities to organise cooperation

Examples: exchange of researchers, experiences and plans, peer review of proposals, etc, similar to the twinning between Established and emerging NRENs organised by TERENA.

The momentum is being built. It is now the time to accelerate implementation!

Africa offers a fertile context with a number of interesting initiatives having challenging objectives.

- **Africa** can benefit from European experiences and speed-up the process of recovering the gap with other advanced economies
- **Europe** can exploit e-Infrastructure best practices and demonstrate their validity, as well as give access to young talents and high quality researchers.