



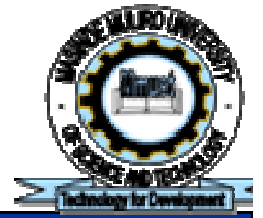
Accelerating Research in Africa through Sustainable Virtual Research Communities

Presenter

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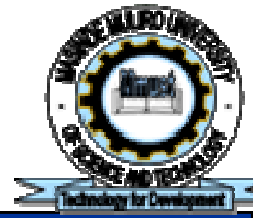


Motivation/problem

- Challenge of research capacity in Africa
- Need for more formal research networking as a long lasting solution to the challenge
- Improved research environment suitable for online collaborations
- Existing research groups founded on funding opportunities likely to disintegrate after donors pull out



Remedy = upgrade research groups to communities of practice

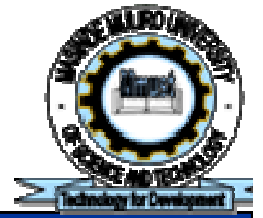


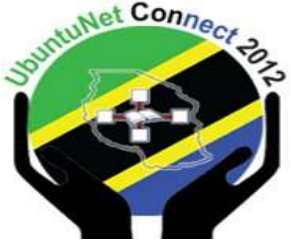


Research Objectives

To investigate:

1. How collaborations seek to address research capacity problem in Africa
2. Effect of collaborations on generation of intellectual property goods
3. How existing research groupings can be transformed to sustainable virtual research communities

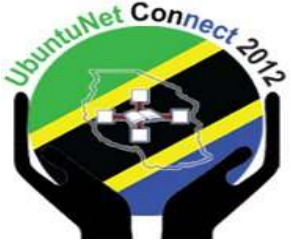




Research approach/methodology

- desktop/web review of grey and published literature for secondary data
- systematic review of existing well established virtual research communities
- Scrutiny of artifacts including project web sites, call for proposal documents (for constrains emphasizing use of ICT in research collaborations)
- Scrutiny of publications for evidence of intellectual property good.

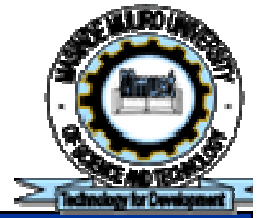




What constitutes research capacity

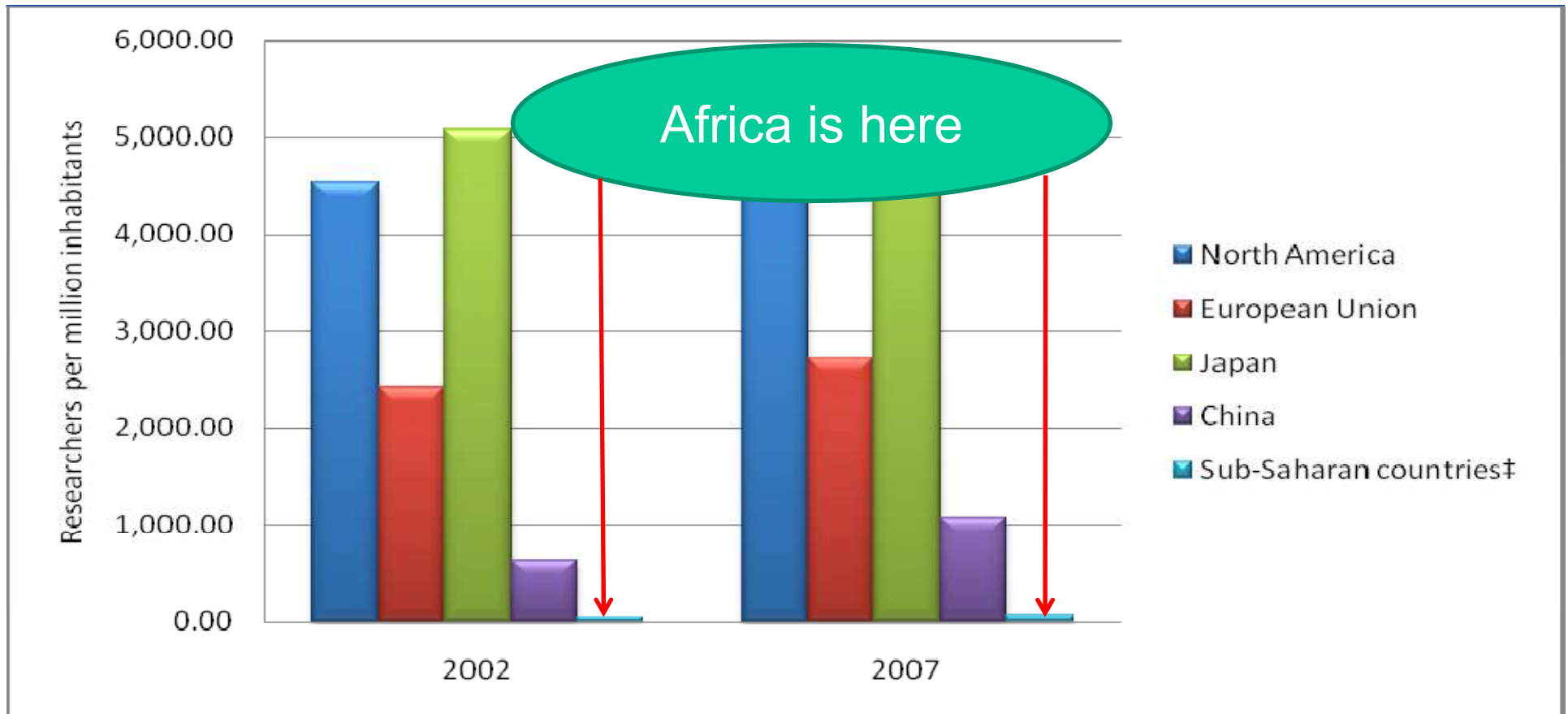
- Individual skills developed in research work (brain drain is affecting this component in Africa)
- Quality of the research environment (affected by high cost of scientific equipments)
- Funding (research funds too little)
- Research incentives (demotivates researchers)
- Time available to the researcher among (researchers overloaded by teaching)

(Akilagpa, 2004).





The research capacity challenge



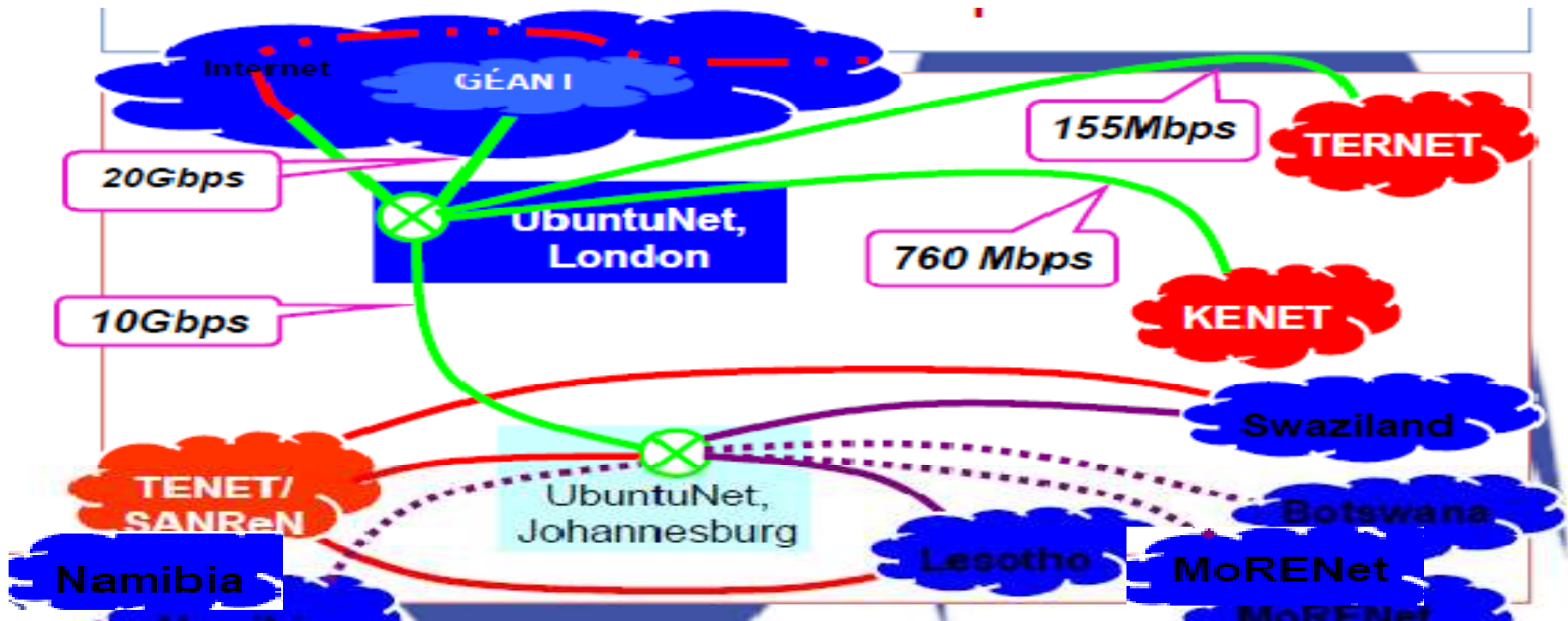
- (source Nordling 2010)





Addressing the challenge: ICT Enhanced research environment

improving connectivity to link researchers to international resources



Source: Tiwonge M. B.
2011





Emerging research networks in the improved environment

- No. of HEIs and projects involved in selected distributed computing projects

Country/Region	No of HEIs	No of projects	
		Brain Gain	HP- Catalyst
West Africa			
Ghana	1	1	
Nigeria	1	1	1
Senegal	1	1	
Burkina Faso	1	2	0
Côte d'Ivoire	1	1	
<i>Sub total</i>	<i>5</i>	<i>6</i>	<i>1</i>
North Africa			
Morocco	1	1	
Tunisia	1	1	
Egypt	1	0	1
Algeria	1	1	
<i>Sub total</i>	<i>4</i>	<i>3</i>	<i>1</i>





No. of HEIs and projects involved in Distributed Computing Projects.

Central Africa			
Cameroon	2	2	0
<i>Sub total</i>	<i>2</i>	<i>2</i>	<i>0</i>
East Africa			
Ethiopia	1	1	
Kenya	3	2	2
Uganda	2	2	0
<i>Sub total</i>	<i>6</i>	<i>5</i>	<i>2</i>
South Africa			
Zimbabwe	1	1	
South Africa	3	0	3
<i>Sub total</i>	<i>4</i>	<i>2</i>	<i>3</i>
Total	21	17	7





A virtual e-science laboratory at MMUST

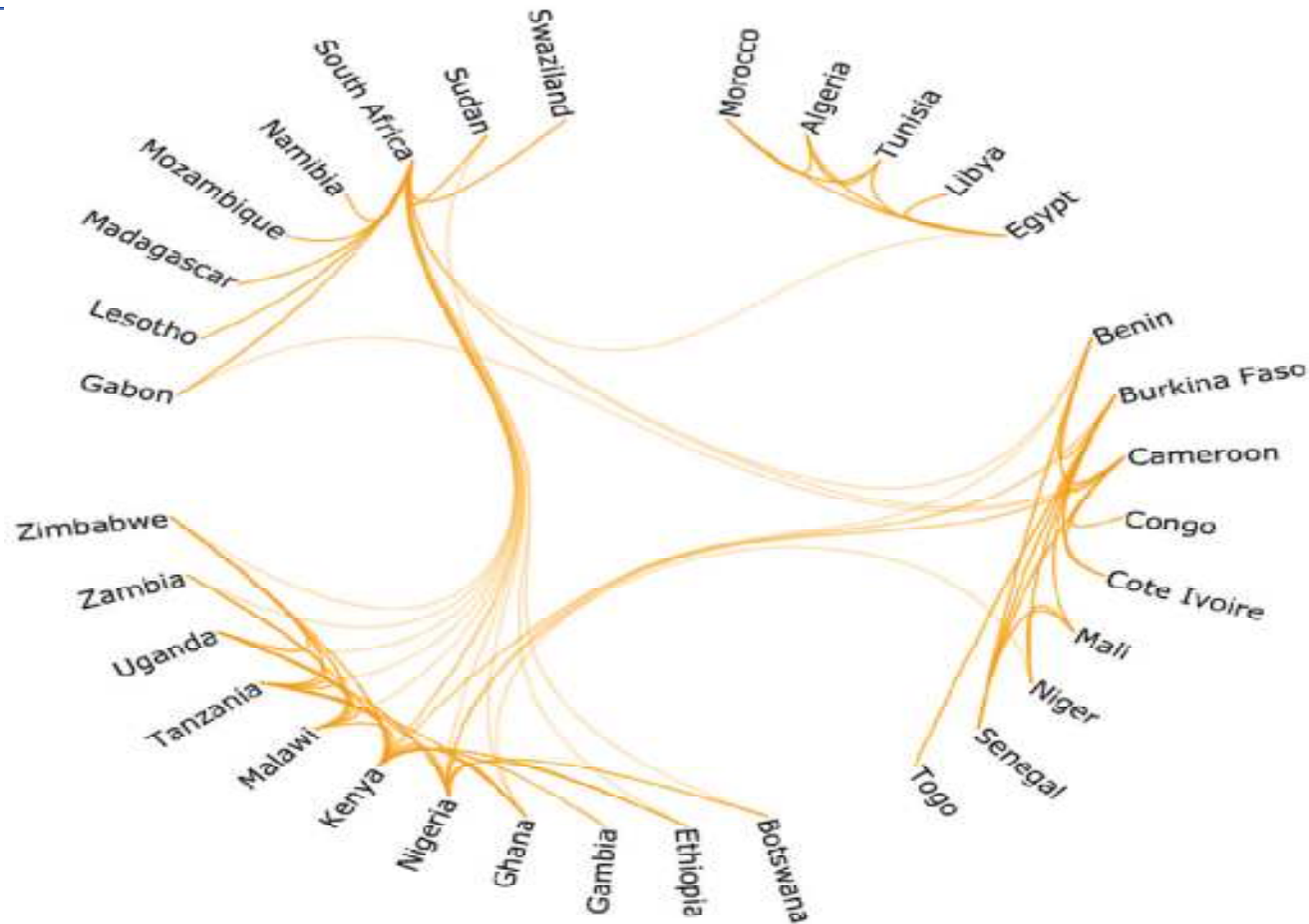


- Courtesy of multidisciplinary distributed computing projects
- Equipment Donors: UNESCO and HP
- Research networks supported
 - E-waste management
 - Computational chemistry
 - Sports science
 - collaborations in criminology course



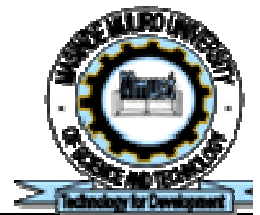


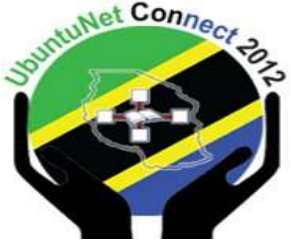
Visualization of strong collaborations by papers co-published



All countries in the distributed computing projects are captured here

Source: Adams et al (2010)



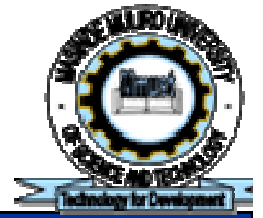


Collaborations vs. intellectual property goods

- All countries taking part in distributed computing supported research in table 2 appeared in the Visual interpretation of collaboration, by papers published in figure 3

Interpretation

- active participants in ICT supported research networks generate a fair amount of intellectual property goods.
- It shows that online research networking is powerful and can effectively solve Africa's research capacity challenge





From Informal Research Networks to Structured Virtual Research Communities

CONCERNS

- Existing research networks in Africa are quite informal most of them arising out of funding opportunities.
- Often research networks spring from call for proposals by donors
- constitutions of members in the network is defined by the constraints in the call for proposal documents.
- Most of them disintegrate after funding phase as they lack strong ties

Solution : Transform the networks to communities to give them structure and better ties

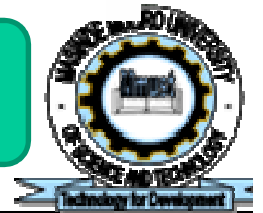




Networks vs. Communities vs. Teams

What's the difference

Communication

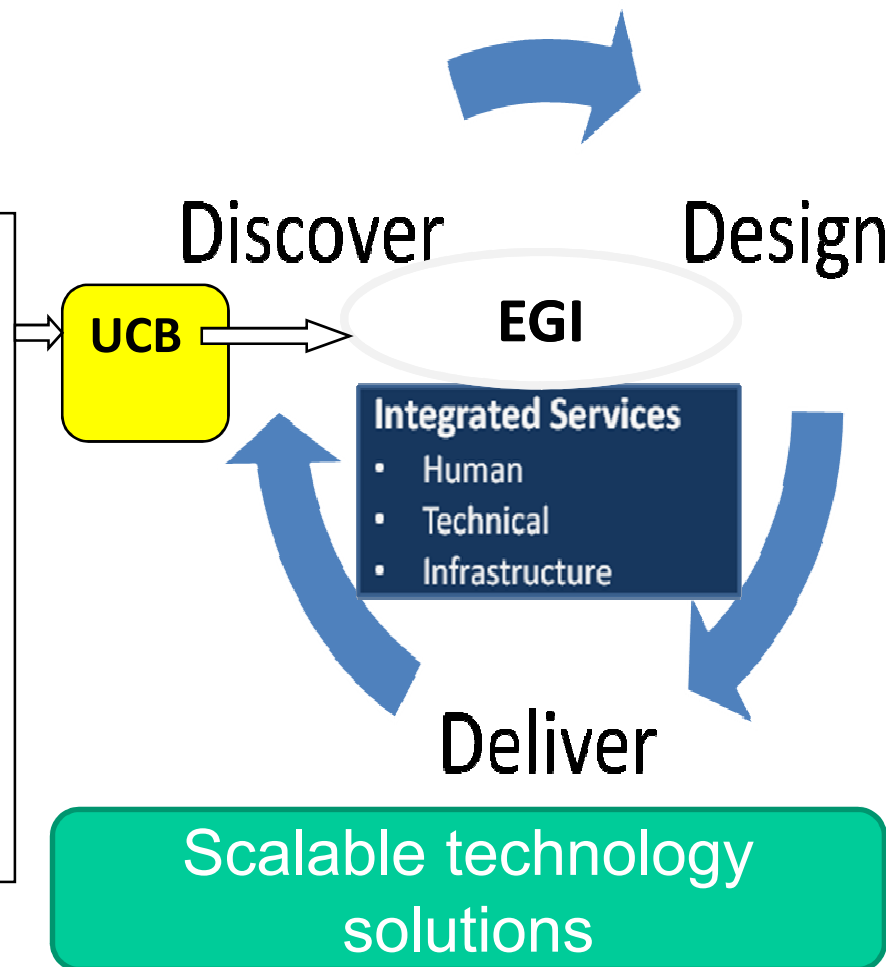




Lessons from EGI

What makes up a Virtual Research Community?

- Virtual Organisations
- Mailing lists
- Workshops
- Forums
- Blogs
- Projects
- Shared stories
- Best practices
- Collaborations
- Laboratories
- Partnerships

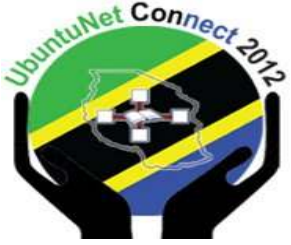


VRCs provide EGI with:

- Requirements
- Applications and tools
- Data collections
- Training modules
- Success stories
- Experts
- Users

EGI offers VRCs:

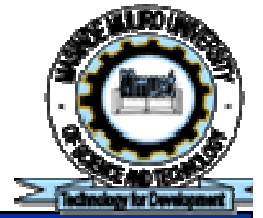
- Easy to use infrastructure
- Grid-ready applications
- Training resources
- Help and support
- Involvement in open development processes
- Workshops and forums



Lesson from Open Philosophies for Associative Autopoietic digital ecosystems (OPAALS) community of practice

Relevant factors to create sustainable online community

1. usage common of language
2. Choice of an effective media to facilitate the collaboration processes
3. shared understanding regarding particular concepts;
4. a well elaborated communication etiquette
5. a governance founded on a shared role understanding;
6. a concrete community enlargement strategy for research partners
7. policies that concern the joining and leaving of the community and access to resources.





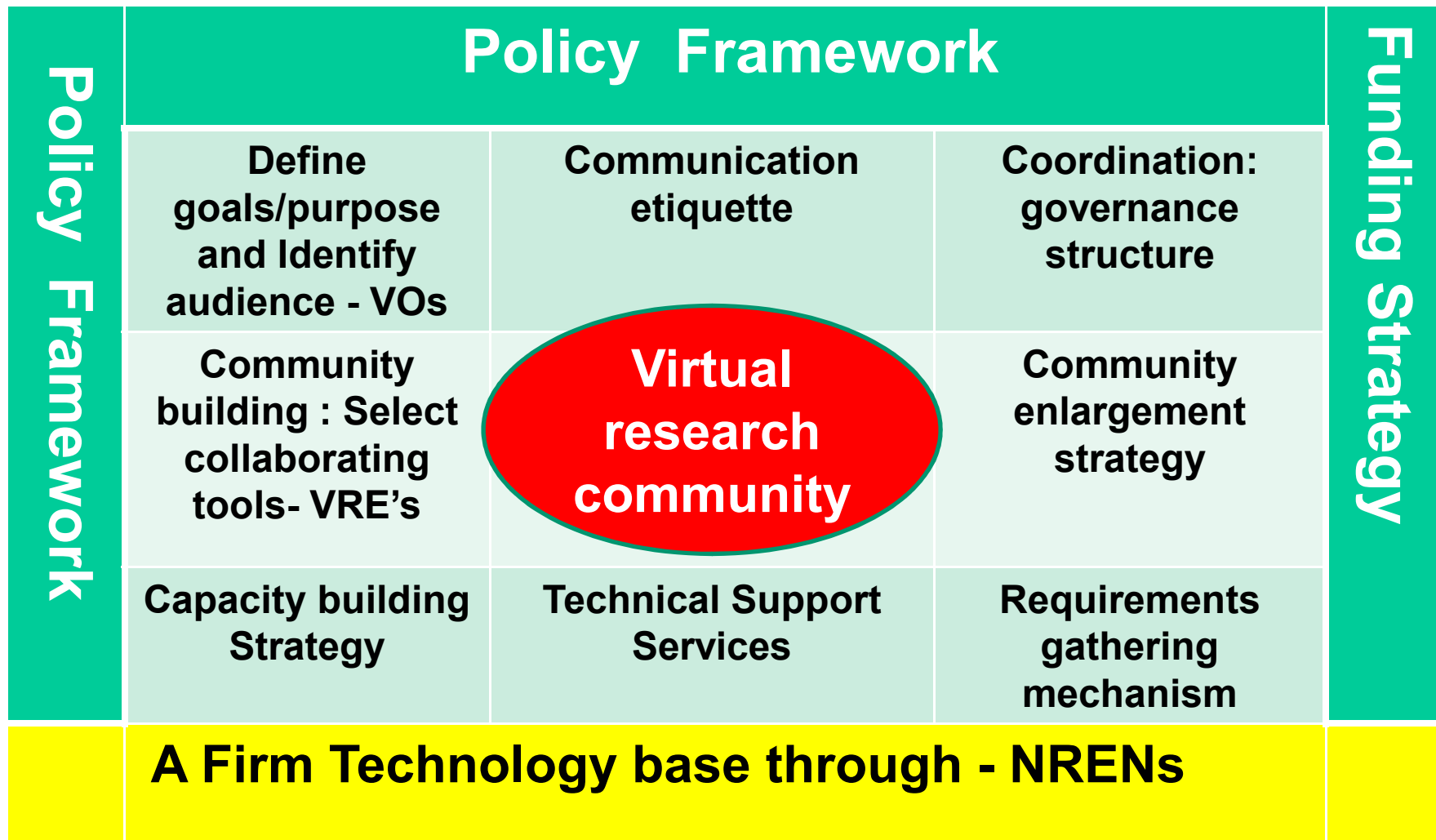
Sustainable VRC: Critical Success Factors

- (1) A strong technology infrastructure
- (2) A good policy framework
- (3) A funding strategy
- (4) Clear purpose and goal
- (5) Communication etiquette: negotiate channels And protocols
- (6) Coordination: establish governance structure
- (7) Community building and collaborations process: Selecting collaborating tools- VRE's
- (8) Community enlargement strategy
- (9) Capacity building Strategy: Community Support Workshops, training and awareness raising
- (10) Requirements gathering mechanism:
- (11) Technical Support team





Establishing Sustainable Virtual Research Communities in Africa: A Conceptual Framework





THANK YOU FOR YOUR ATTENTION

QUESTIONS AND SUGGESTIONS

