

UbuntuNet  
**CONNECT** | 2017 UbuntuNet-Connect 2017  
2-3 November 2017  
Addis Ababa | Ethiopia  
Africa/Addis\_Ababa timezone

*Building and Strengthen National Research and  
Education Networks (NRENs) in Africa through Intra-  
African Collaborations*

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**Ghana Research and Education Network (GhREN)**

# About GhREN

## Ghana Research and Education Network

GhREN as a membership based organisation and a not-for-profit business and an alternative NREN in Ghana

- Legally Incorporated as a Company Limited by Guarantee on **20th September 2017** with a **Five** member Board
- Has about 30 members and growing
- Endorsed and Recognised by the Government of Ghana through the Ministry of Education
- GhREN is a full member of WACREN
- License to operate as a Public/Private Network Operator is currently pending
- Gaining Local and International Recognition
- Planning Official Launching for November 2017



the NREN

**N**ational **R**esearch and  
**E**ducation **N**etwork



# a Network of Networks...

Using both human and high-speed national networks to connect academic and Research institutions together



It is the objective of the NREN as an **organisation** to provide the physical network and facilitate human **collaborations**

# Open Membership

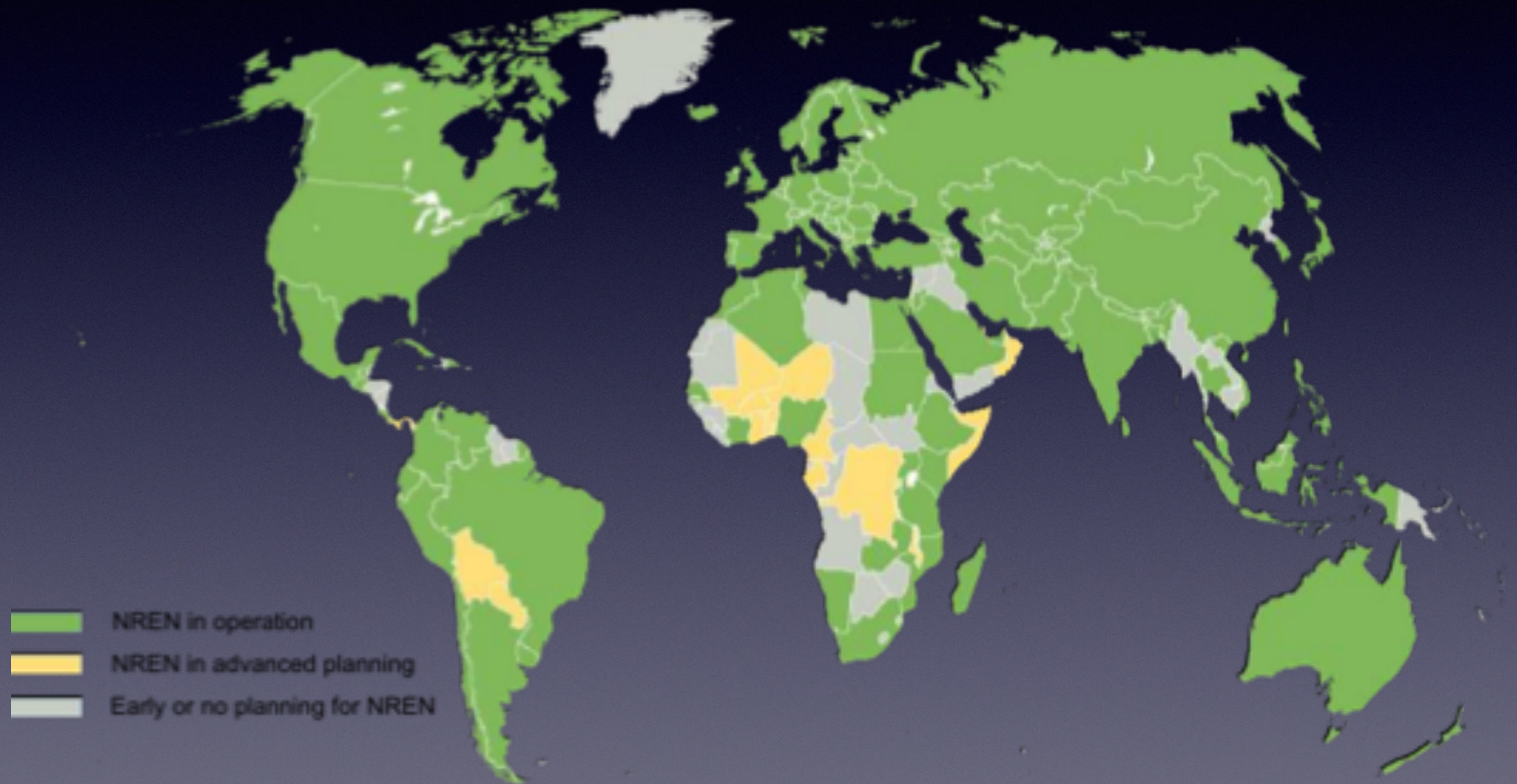


All accredited Tertiary and Research Institutions are allowed to join under the same terms of conditions and without any restrictions

# Why form an NREN?

- Create economy of scale for building and sharing high-speed networks and services
- Contribute to inter-institutional **collaboration**, research and human networking between universities in the country and other international universities
  - Shared Resources and Infrastructure
    - Organisational, National, Regional and Global Levels
- Promote linkages between the academic and research community, industry, government and other international research and educational networks.

# About 110 countries have now established NRENs



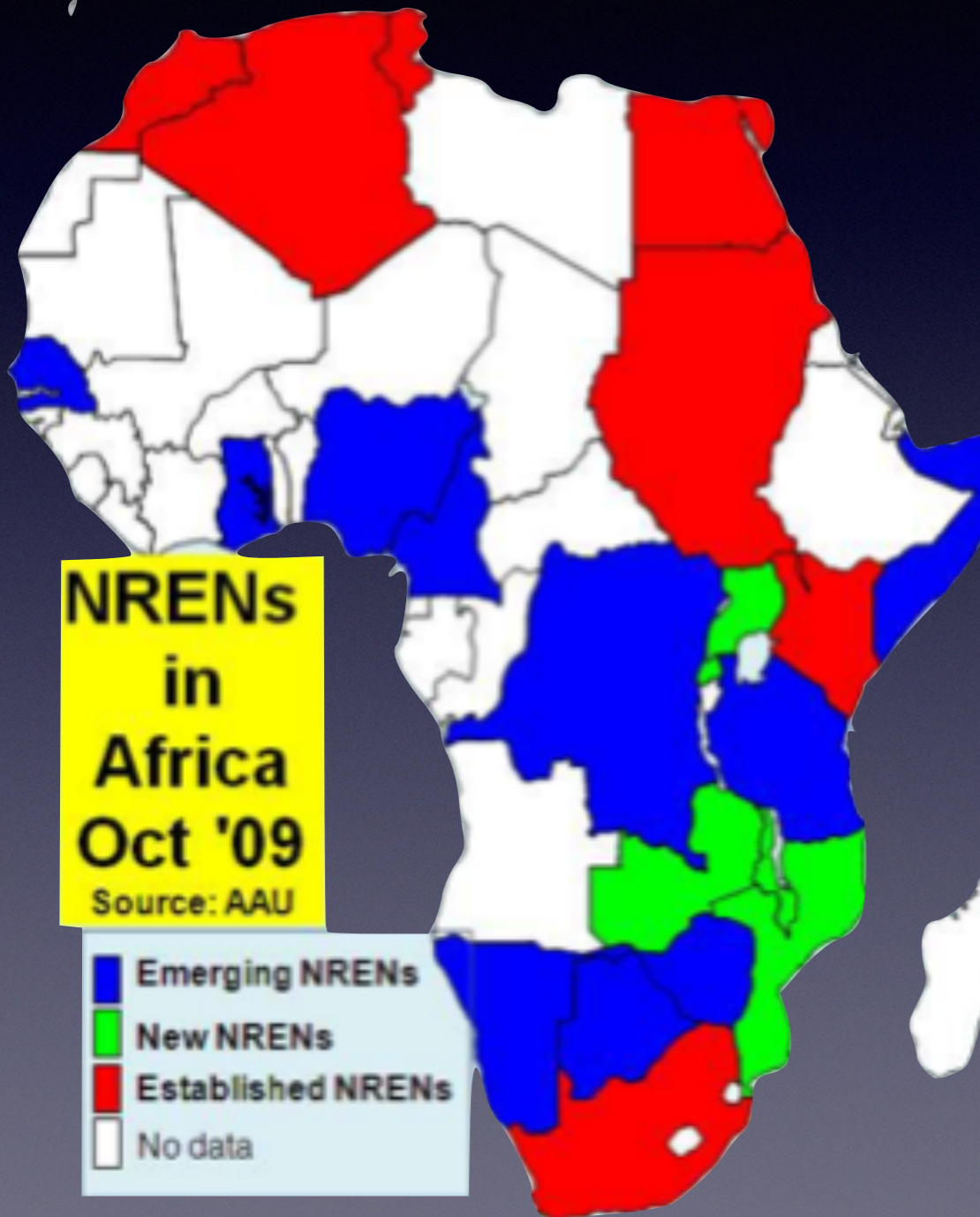
**Source:** World Bank's Education Global Practice (GEDDR) Commissioned Study on NRENs  
June 2016

# NRENs in Africa Sept 2017



- NREN in operation
- NREN in advanced planning
- Early or no planning for NREN

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# Intra-African Collaborations

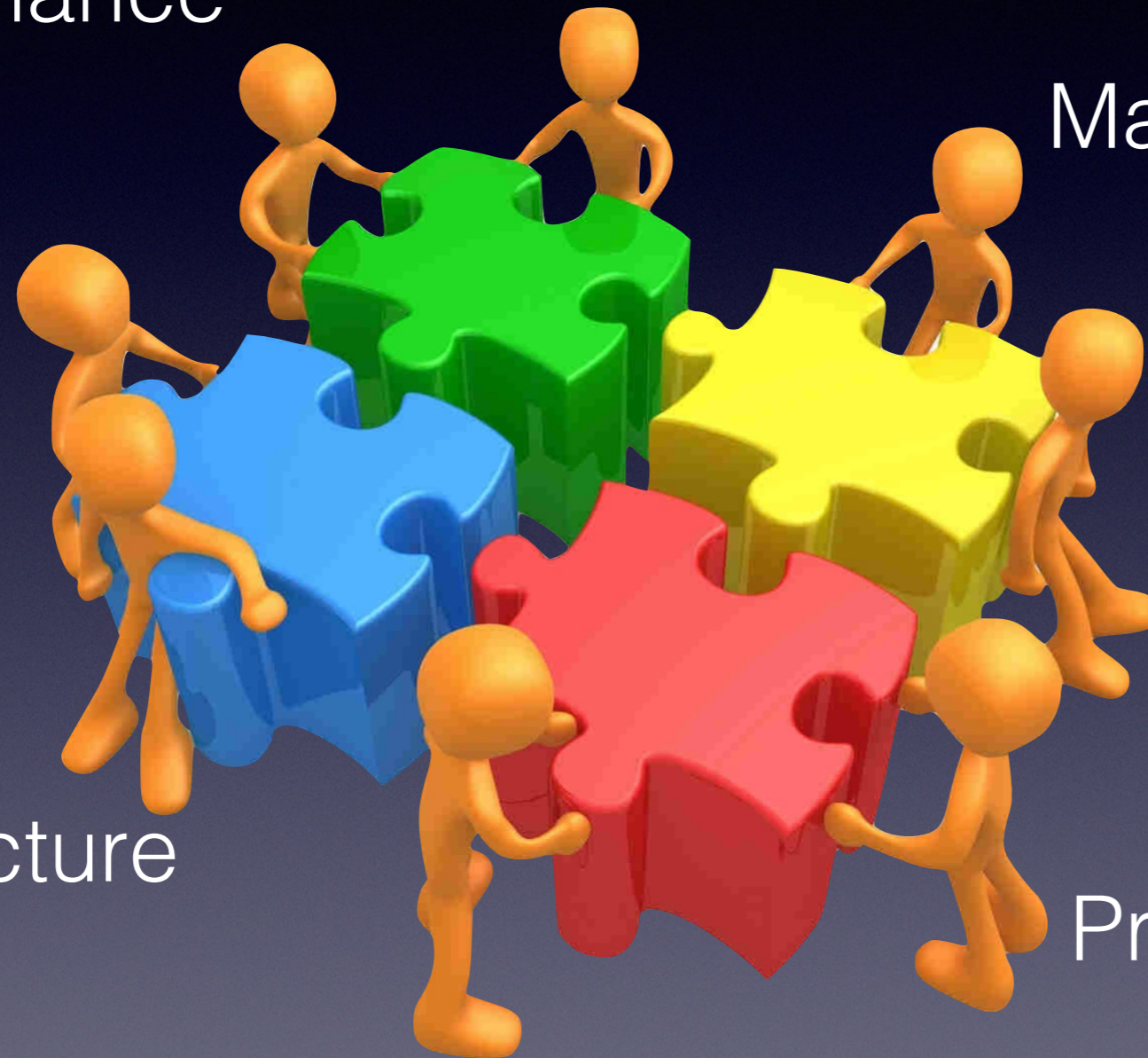
Governance

Management/Staffing

Funding

Infrastructure

Products & Services



Interventions and collaborations with existing and functional NRENs would have to be taken in the above areas

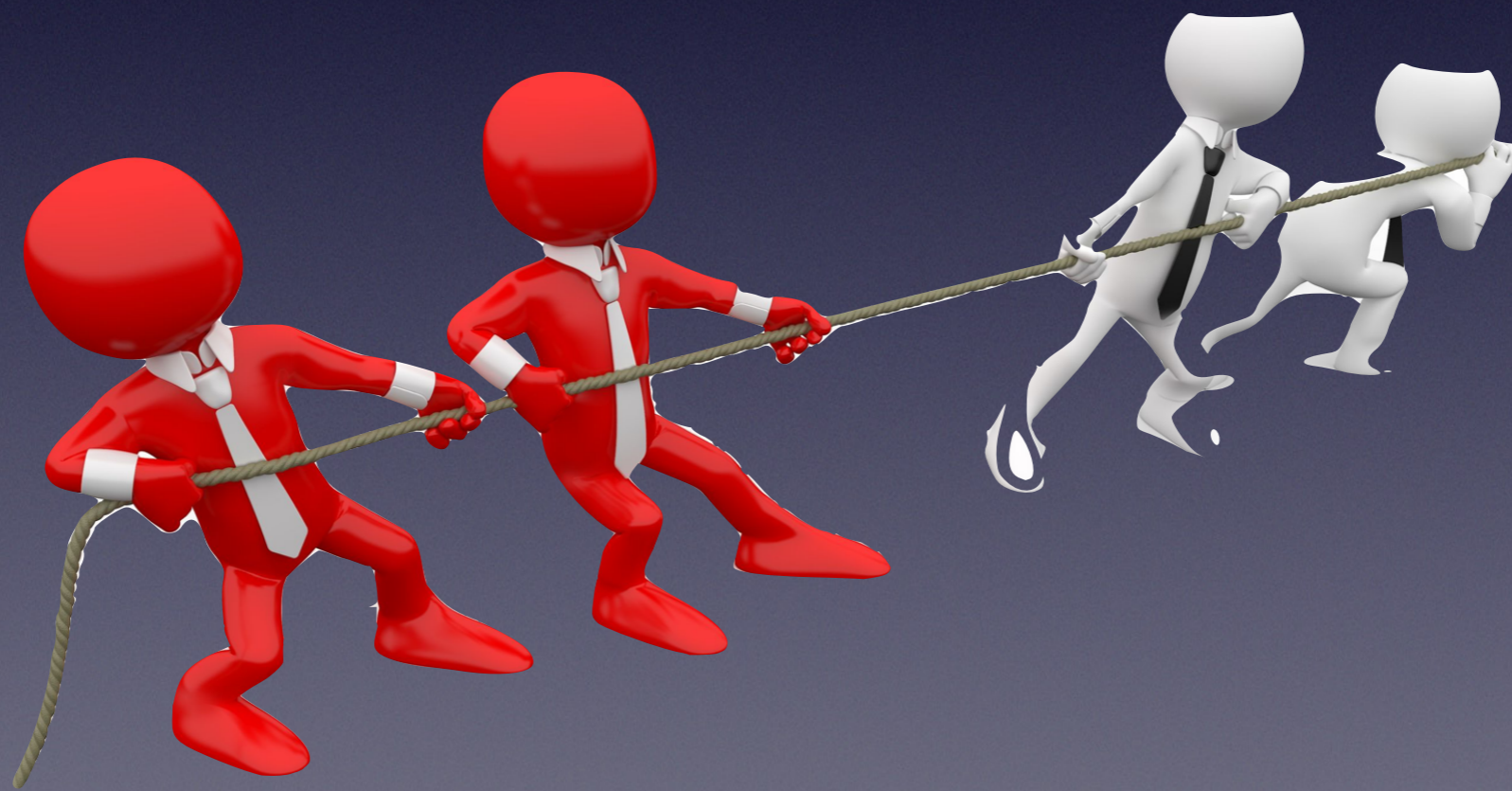
# Governance Structure

- Constitution
- Autonomous from any of the existing HEIs bodies in the Country
- Endorsed and Recognised by the Government
- Expert-Based Board of Directors who are eminent and accomplished individuals to promote the objectives of the NREN
- Must have its own Administrative, Financial and Technical Management Policies



# Challenges in Governance

Can result in constant battles with their promoters **willingness to give up power/privileges** and become more autonomous



# Two NRENs in a Country?

A second NREN could draw in certain strengths and resources that would more would be more in tune to its nature.

Bootstrap the second NREN with a working draft Constitution

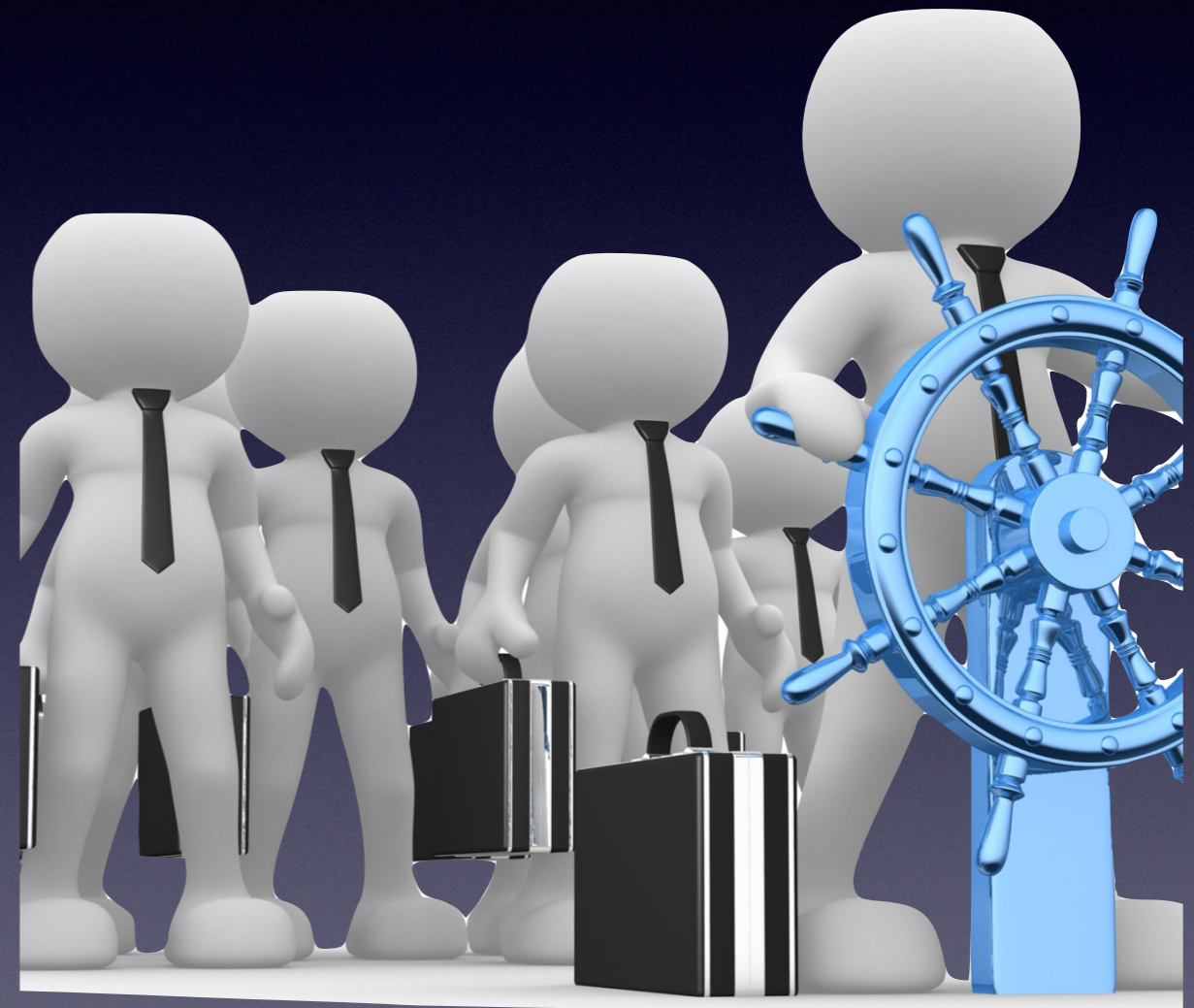
And through collaborations and healthy competition the two NRENs would be able to provide services and products to their members.



# NREN with Full-Time Staff

To start a **very limited** number of staff would be **needed** but with eventual evolve into have a full compliment of staff including

- CEO
- CTO
- Director of Research augmented by committees and working groups from the member institutions in subject domains
- Communications Officer
- Senior Network Officers
- Finance Director and/or Accountant
- Administrative staff



staff has industry recognized competence and provide compensation packages at par with industry and

# Building a National Telco-Agnostic Network Infrastructure

1. The NREN will begin by Leasing Bandwidth from available Local operators  
The NREN must evolve to Lease and Operate its own Backbone links from dark-fibre or IRU in order to have unlimited access to local national resources

Leverage on the partnership with IRU providers to demonstrate mutually beneficial relationships

Engage in swap deals to carry traffic for service providers into areas that are not economically and/or financial viable to them



# Funding

Because of the long periods of inactivity and the associated skepticism from the African Higher Education community, it would require huge investments to leapfrog most NRENs to be vibrant and sustainable



# Funding Model

## Capital Expenditure (CAPEX)

Seek Government and Development partner support for funding the CAPEX to grow membership. (Backbone, Servers and AC2)

## Operational Expenses (OPEX)

Ensure that membership subscriptions and revenue accrued from products and services should support the OPEX

Institutional support for the NRENs to secure operations for 3 to 4 years will bring a coherent connectivity and services to its members and will guarantee sufficient resources to deploy and maintain a sustainable network infrastructure.



# The NREN must be a broker for Procuring R&E and Internet Services

A key outcome of the successful NREN is its ability to meet the content and application needs of its consumers - researchers, students, academic and administrative staff. These services include but not limited to

- Bandwidth (Speed of Internet Access)
- Data storage services
- High Performance Computing
- ERP Services
- Web conferencing-as-a-Service
- E-Learning and Digital Library Resources
- Repository of Shared Resources (National Labs)
- Best Practices for IT Directors and Managers
- Research and Management training
- Academic publishing and Proposal writing
- Use of Open Datasets and e-Science gateways
- Trust and Federated Identities



With the full compliment of Staff of the NREN secretariat especially through the **Director of Research**, augmented by committees and working groups from the member institutions in subject domain, specific and tailor made products and services would be organically developed

# Building and Strengthening NRENs in Africa

Requires a **concerted** and **collaborated** efforts to adopt and implement best practices in..

- Governance
- Management/Staffing
- Infrastructure
- Funding
- Products and Services

On a Country by Country bases involving but not limited to...

- The 3 Regional Research and Education Networks (RRENs)
- Development Partners
- National Stakeholders



# Questions?

Thank You...

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