



Open access, development and connectivity

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WACREN Experience



Connectivity – The AfricaConnect project – <https://africaconnect3.net/>



Open Science – LIBSENSE – <https://spaces.wacren.net/display/LIBSENSE/>

NRENs in Africa and LIBSENSE - the value proposition for Open



The AfricaConnect3 project receives funding
from the European Union under Grant Contracts
DCI-PANAF/2019/411-583/584/585/586



The Problem – The Digital Divide



Africa is contributing to only 2% of the World's research output, according to UNESCO



Africa has only 91 researchers per million people, while North America and Western Europe have 4000



Internet penetration in Africa still remains behind other parts of the world (39% in Africa versus 58% in the rest of the world)



Students and researchers in Africa have great potential in research and knowledge sharing but access to reliable and affordable connectivity is the problem



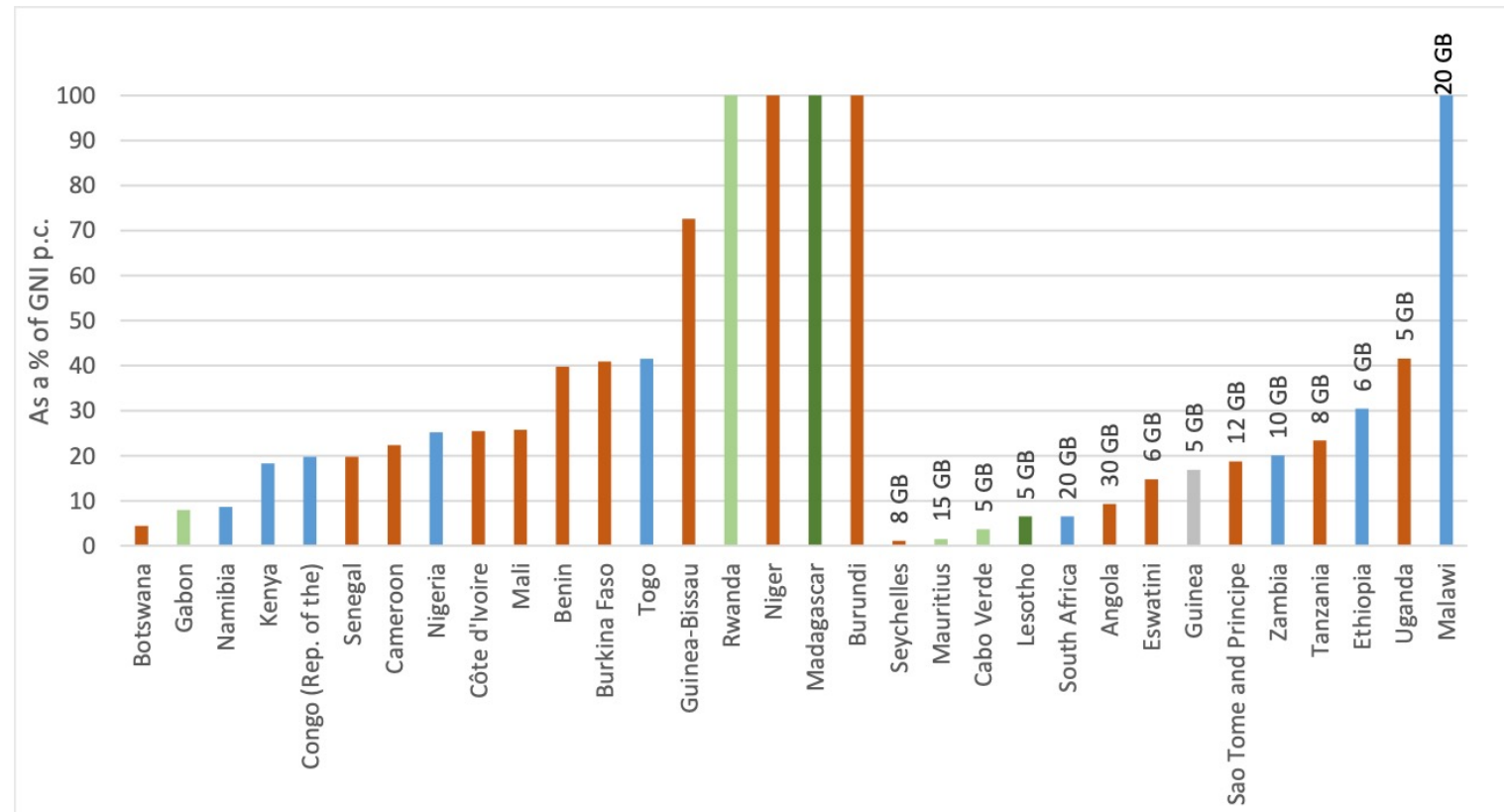
Investment into tech in Africa significantly trails investment in tech in other continents, such as Asia

Africa: Broadband Prices against GNI



- The graph illustrates African Broadband prices as a percentage of each country's respective GNI.
- Internet access/availability remains relatively expensive in Africa, with countries such as Guinea-Bissau, Rwanda, Niger, Madagascar and Burundi fairing the worst.

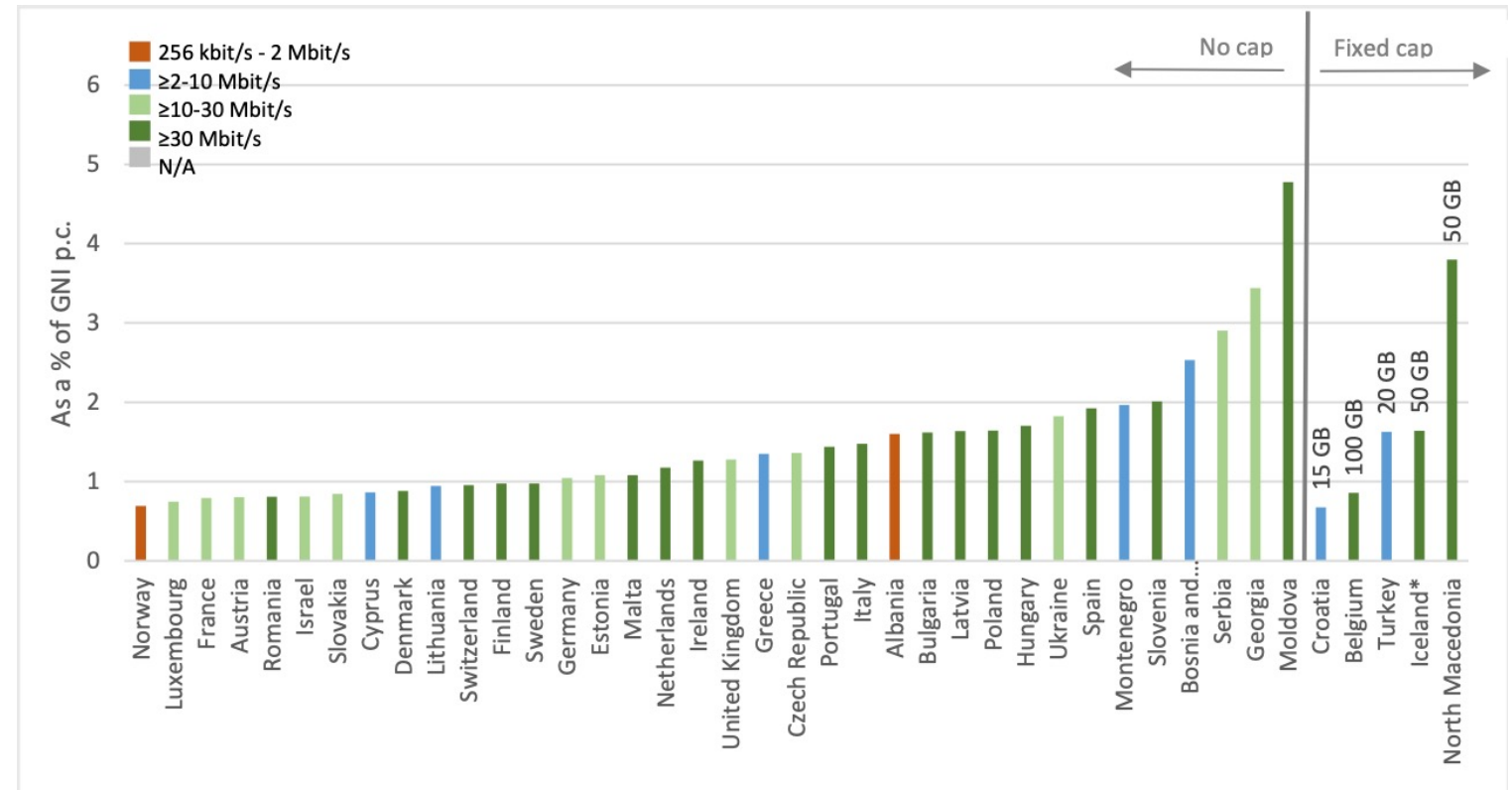
Graph courtesy of ITU, Measuring Digital Development, ICT Price Trends report, 2019.



Europe: Broadband Prices against GNI



- The graph illustrates European Broadband prices as a percentage of each country's respective GNI.
- In comparison to Africa, broadband prices in relation to the GNI of separate European states remain very low, dwindling between percentages below 1% and hitting a maximum of below 4%.



Graph courtesy of ITU, Measuring Digital Development, ICT Price Trends report, 2019.

What are National Research and Education Networks?



A **national research and education network (NREN)** is a non-for profit organisation dedicated to supporting **research and education** nationally and internationally through **high-capacity connectivity** and **other value added services**.

NRENs are connected at the regional level through Regional R&E Networks (e.g. WACREN, UbuntuNet Alliance, ASREN and GÉANT)

ASREN
Algeria, ARN
Egypt, EUN
Marocco, MARWAN
Tunisia, CCK

WACREN
Burkina Faso, FasoREN
Cameroon, RIC
Chad, TchadREN
Côte d'Ivoire, RITER
Ghana, GARNET
Ghana, GhREN
Guinea, Gn-REN
Mali, MaliREN
Niger, NigerREN
Nigeria, NgREN
Sierra Leone, SLREN
Togo, TogoRER
Liberia, LRREN

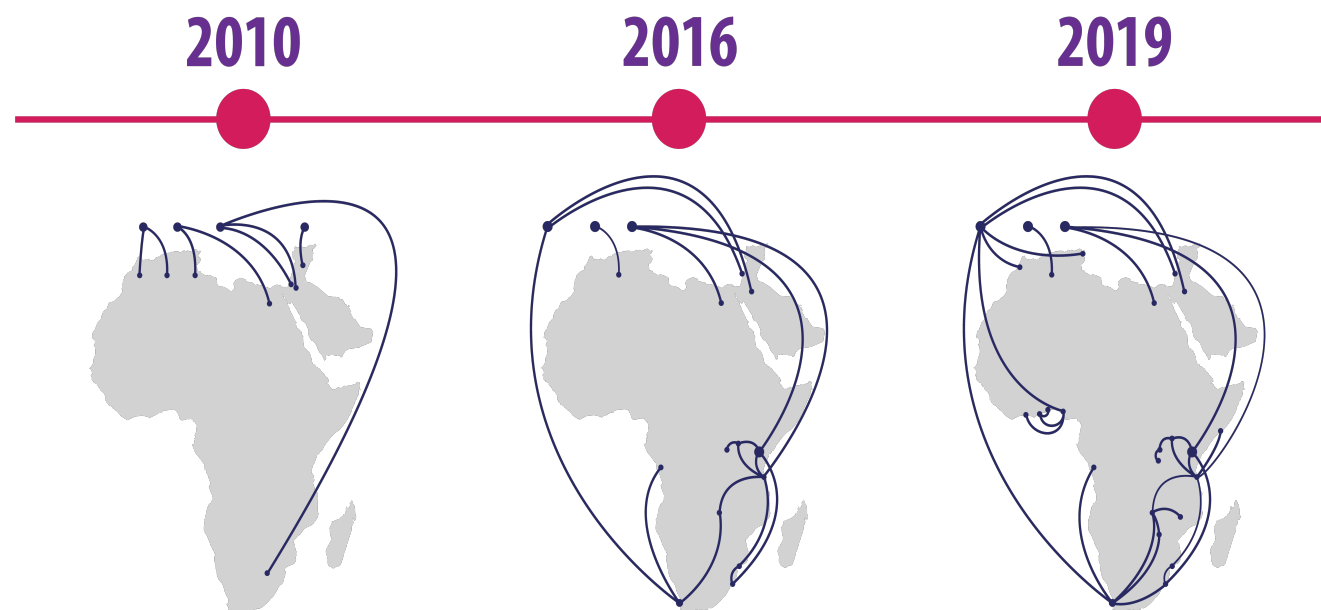
UbuntuNet Alliance
Botswana, BotsREN
Burundi, BERNET
D. R. Congo, Eb@le
Ethiopia, EthERNet
Kenya, KENET
Madagascar, i RENALA
Malawi, MAREN
Mozambique, MoREnet
Namibia, Xnet
Rwanda, RwEdNet
Somalia, SomaliREN
South Africa, TENET
Sudan, SudREN
Tanzania, TERNET
Uganda, RENU
Zambia, ZAMREN
Zimbabwe, ZAMREN



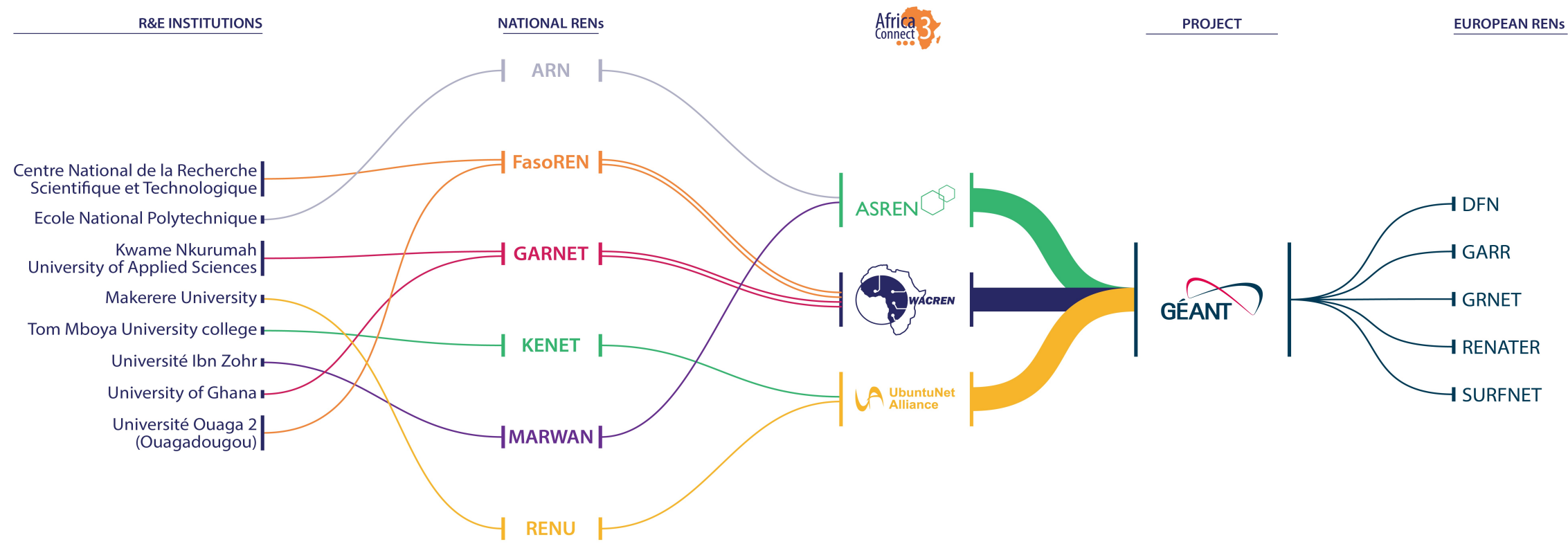
A Pan-African R&E Network



- Since AfricaConnect **started in 2011**, **23 out of 38 African** NRENs are connected to their regional network:
- **UbuntuNet Alliance:** Burundi, DRC, Kenya, Malawi, Mozambique, Rwanda, Somalia, South Africa, Tanzania, Uganda, Zambia and Zimbabwe.
- **WACREN:** Benin, Burkina Faso, Côte d'Ivoire, Ghana, Nigeria and Togo.
- **ASREN:** Algeria, Egypt, Morocco and Tunisia.
- All three regional networks are growing.



A Global Network



NREN Value Propositions



Trusted Digital Africa Stakeholder:

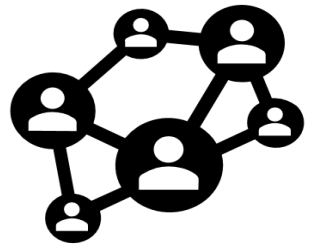
NRENs are not-for-profit organizations looking after the best interests of their end users.



Connectivity and dedicated services:

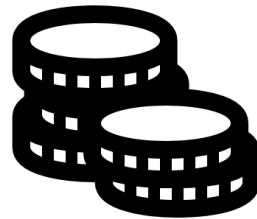
Provide dedicated and uncongested internet connectivity and value-added services for knowledge institutions (e.g. universities, research centres and libraries) to enable collaboration and access to data resources

NREN Value Propositions



Globally connected:

African RRENs are linked to global research and education networks across the global via its interconnection with GÉANT: These linkages facilitate collaborative research and innovative learning worldwide.



Buying Club:

NRENs act as a Buying Club – enable lower prices for universities and research centres.

Buying club – lower prices

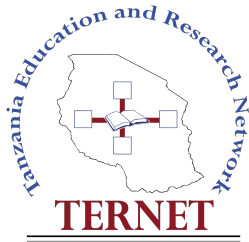


Before and After connecting to the EU-funded network

NRENs	Capacity growth	Cost drop (per Mb)
ZAMREN, Zambia 2011 / 2015	X60!	-94%!
RENU, Uganda 2013 / 2017	X19!	-89%!
ARN, Algeria 2003 / 2015	X55!	-97%!
TERNET, Tanzania 2011 / 2017 – 2012 / 2017	X7!	-75%!

Source: NRENs

Impact of NRENs in Africa



Over 1900 institutions connected are using a more affordable, reliable and high-speed internet to exchange high volumes of research data.



Universities in remote areas connected to high speed internet for research, teaching and learning.



Retained local talent and curb brain drain.



Millions of students and researchers in Africa can collaborate with peers across the globe.



LIBSENSE

STRENGTHENING OPEN SCIENCE IN AFRICA



WACREN

eifl
KNOWLEDGE WITHOUT BOUNDARIES

COAR
Confederation of Open Access Repositories

OpenAIRE

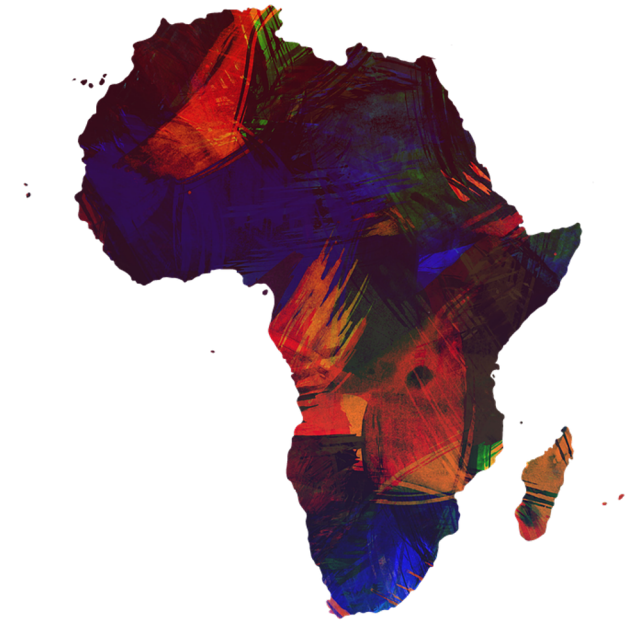
Africa
Connect 3



What is LIBSENSE?

Building a community for open science in the African region(s) through library-NREN collaboration in order to:

- Support cultural change
- Provide technical support
- Build capacity
- Develop value-added services



Who is LIBSENSE?

And the entire open science community in Africa...

Working Groups

- Open science **policies**, governance and leadership
- **Infrastructure** - open access journals, repositories for publications and data and open discovery services
- **Capacity building** - communities of practice and training
- 3 Working languages - Arabic, English and French

Open Science Africa: Principles

- Addressing inequality and supporting equity, diversity and social justice
- Africa-led and operated open infrastructures
- Indigenous/Traditional Knowledge

Open Science Africa: Actions

- Strengthen **equitable partnerships** of editors and publishers, libraries, RENs, funders and other actors to provide **immediate open access to African research via journals, repositories and other means supported by an evolving scholarly communication landscape.**
- Develop **sustainable, collaborative open access publishing models** for African research.

National Open Science Roadmaps

- Leverages UNESCO Open Science Partnership to put agenda before governments, stakeholders and seek political goodwill
- Objectives
 - Shared understanding of the value of open science
 - Priority setting – gaps in infrastructure and skills
 - Development of roadmap and action plan
- Country presentations of NRENs running national open access repositories at WACREN2021 - <https://youtu.be/nzF6jRSJtlc>

SDG – Activities Mapping

- SDG 4 (quality education)
- SDG 5 (gender equality)
- SDG 8 (decent work and economic growth), and
- SDG 9 (industry, innovation, and infrastructure).

Thank you!
Merci!