



# UNIVERSITY OF OSLO

**3rd MUHAS Digital Health & Innovation  
Week, 13-18 Nov 2023**

## Digital Health Information during inclusive and sustainable development

Josef Noll

Professor, Department of Technology Systems (ITS)  
Lead Digital Global Health at the Centre for Global Health (CGH)

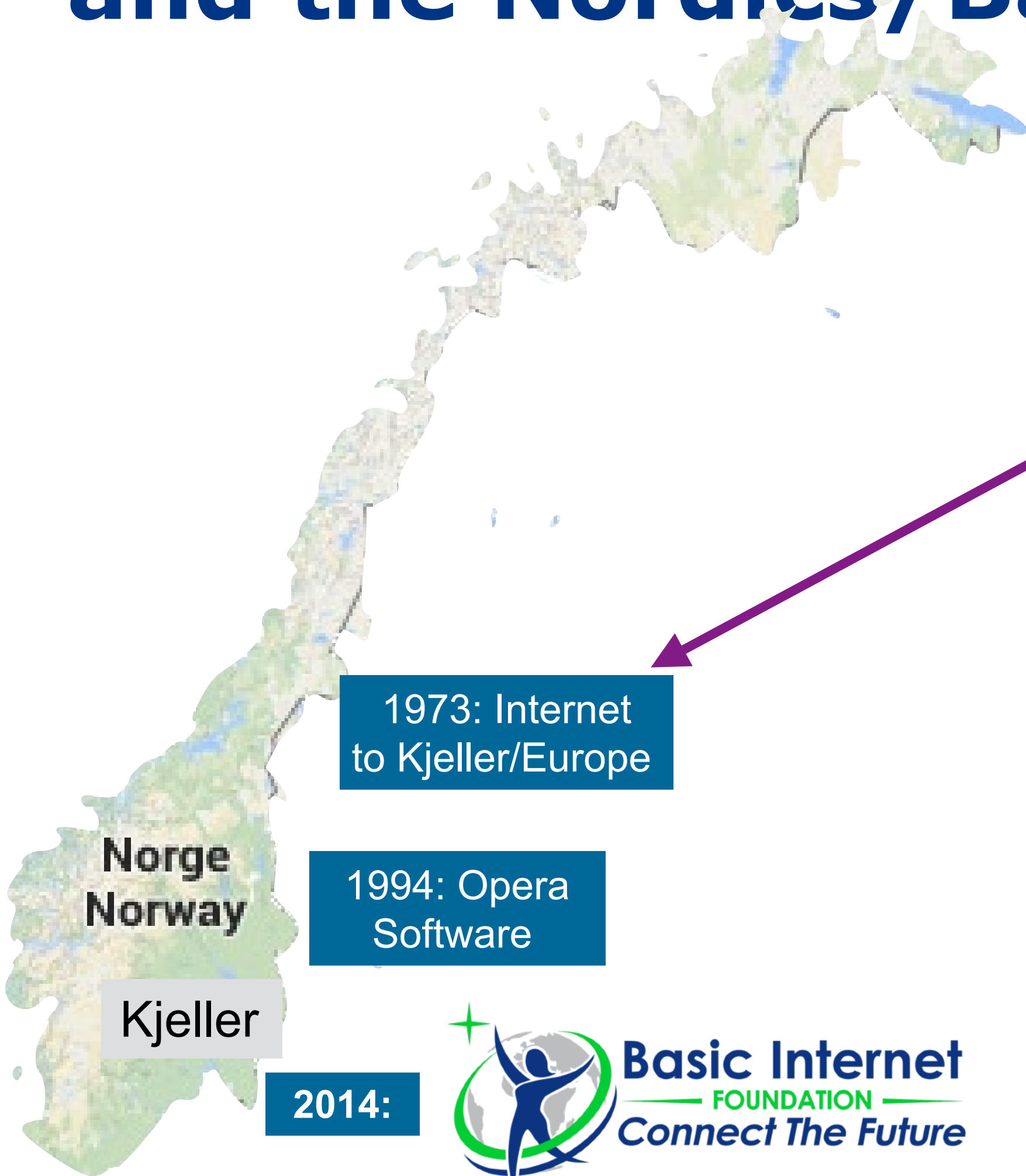


Usingo Secondary School, Kenya



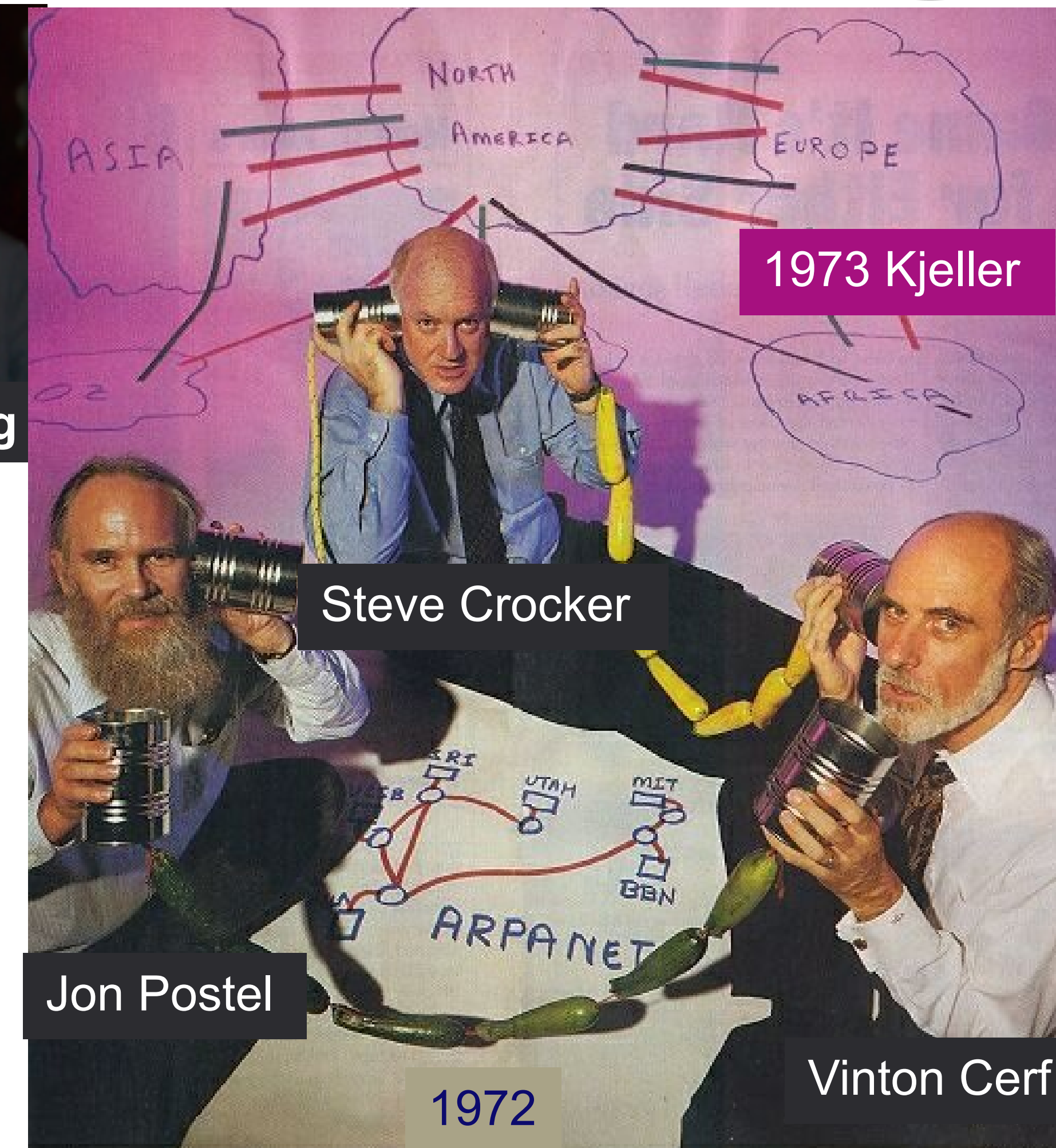


# Inclusive digitalisation in Norway and the Nordics/Baltics (N8)



## Nordics & Baltics (N8)

- php, OpenSource, Linux, Skype, Spotify
- Opera Software, FAST search
- Nokia, Ericsson
- GSM
- GovStack.global, X-Roads



Source: <http://www.michaelkaul.de/History/history.htm>



# Africa

## “Connect The Future”



[https://  
www.mylifeelsewhere.com/  
country-size-comparison/  
tanzania/norway](https://www.mylifeelsewhere.com/country-size-comparison/tanzania/norway)



# Sustainable Empowerment - what are the catalysts for the SDGs?



**SDG 1.4** Equal access to basic services

**SDG 4.A** Education facilities for effective learning for all

**SDG 5.B** Use of enabling technologies

**SDG 9.C** universal and affordable access

**SDG 16.10** ensure public access to information

**SDG 17** Partnerships for the Goals





2.

A Just Transition is greening the economy that is as fair and inclusive to all, creating decent work opportunities and leaving no one behind.

1.

In tackling critical environmental challenges like climate change, pollution and plummeting biodiversity, nations and businesses must transition towards greener, resilient and climate-neutral economies and societies.

6.

Green jobs limit greenhouse gas emissions, minimize waste and pollution, protect and restore ecosystems, improve energy and raw material efficiency, and support the adaptation to the effects of climate change.

7.

Green jobs propel the preservation and restoration of the environment across sectors such as agriculture, manufacturing and energy.

8.

Decent jobs, are a co-benefit of a green and just transition due to the fact that such jobs entail practices such as cleaner production & consumption and energy efficiency that improve occupational safety and health (OSH) in the workplace.

9.

At the enterprise level, green jobs can produce goods and services that benefit the environment, for example green buildings or clean transportation.

10.

Green jobs also contribute to more environmentally friendly processes. For example, green jobs can reduce water consumption or improve recycling systems.

11.

Green Jobs are jobs that are good for people, good for the economy and good for the environment.

## Just Transition

## Green Jobs

## Digital Empowerment

Participatory transition

Market place

Neighbourhood

4.

Ensuring a Just Transition is key for all countries, rural and urban communities at all levels of development as well as all economic sectors – not only limited to energy supply chain.

5.

A Just Transition is both a process and a goal to undertake climate change actions that equally advance: **job creation, social justice and fair transitions for workers, enterprises and communities** on an equal footing.



# Inclusive Internet Access



“My mobile is more important than a weapon”

Head of Mbaash, TZ



Catherine R Kimambo connecting her first village

<https://vimeo.com/368147538> - 2020

The first search was:  
Mount Kenya - our cultural heritage  
Usingo Secondary School, KE





# Reality of the Digital Divide



1. Boys have the toys



Dalle - "Boys have the toys"

2. The cost of access



Dalle - "African girl suffering from mobile broadband costs"


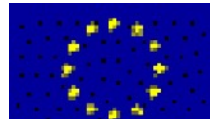


# Business model?



## How to “Connect the Future” and “Empower my Dreams”

### → Western World

- fixed & mobile & work - about 100-200 USD/family
-  17.000 base stations,  U: 421.000 towers [Statista]

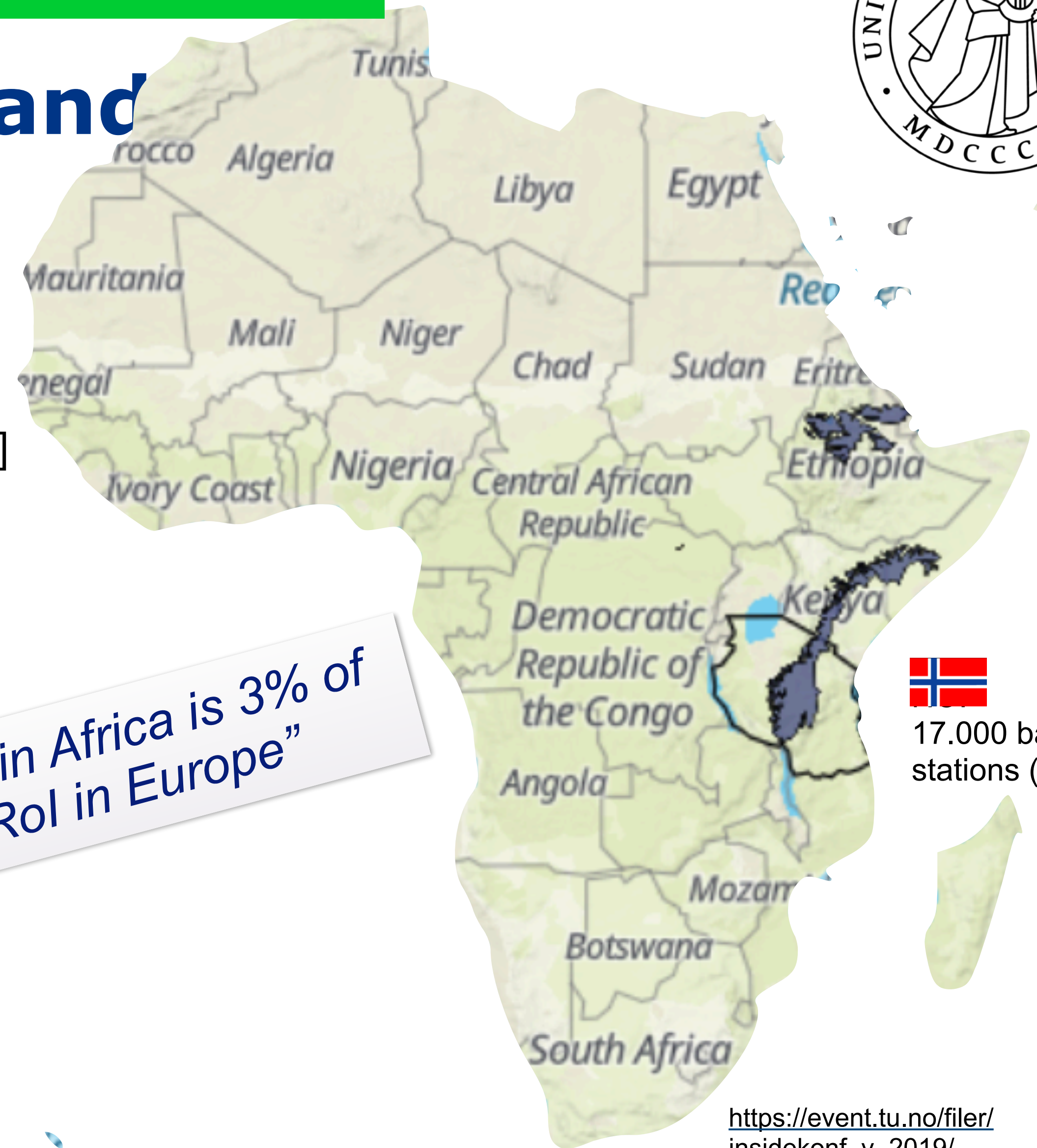
### → Example: Tanzania

- large distances (3 x size of Norway)
  - expensive access
  - negligible fixed broadband
- ability to pay: 10-20 USD/family

### → Europe vs Africa

- 6.8% vs 20% of land area
- 746 million vs 1.3 billion (2018)
- 112 vs 43 people/km<sup>2</sup> [Worldbank, Statista]

“RoI in Africa is 3% of  
RoI in Europe”



17.000 base  
stations (2022)

[https://event.tu.no/filer/insidekonf\\_v\\_2019/Eivind\\_Mikkelsen\\_Trenger\\_Norge\\_100.000\\_basestasjoner.pdf](https://event.tu.no/filer/insidekonf_v_2019/Eivind_Mikkelsen_Trenger_Norge_100.000_basestasjoner.pdf)



# What if ...

**We revisit access**

**We decentralise the Internet**

**We use Universities to connect**

**We provide Digital Health Information**

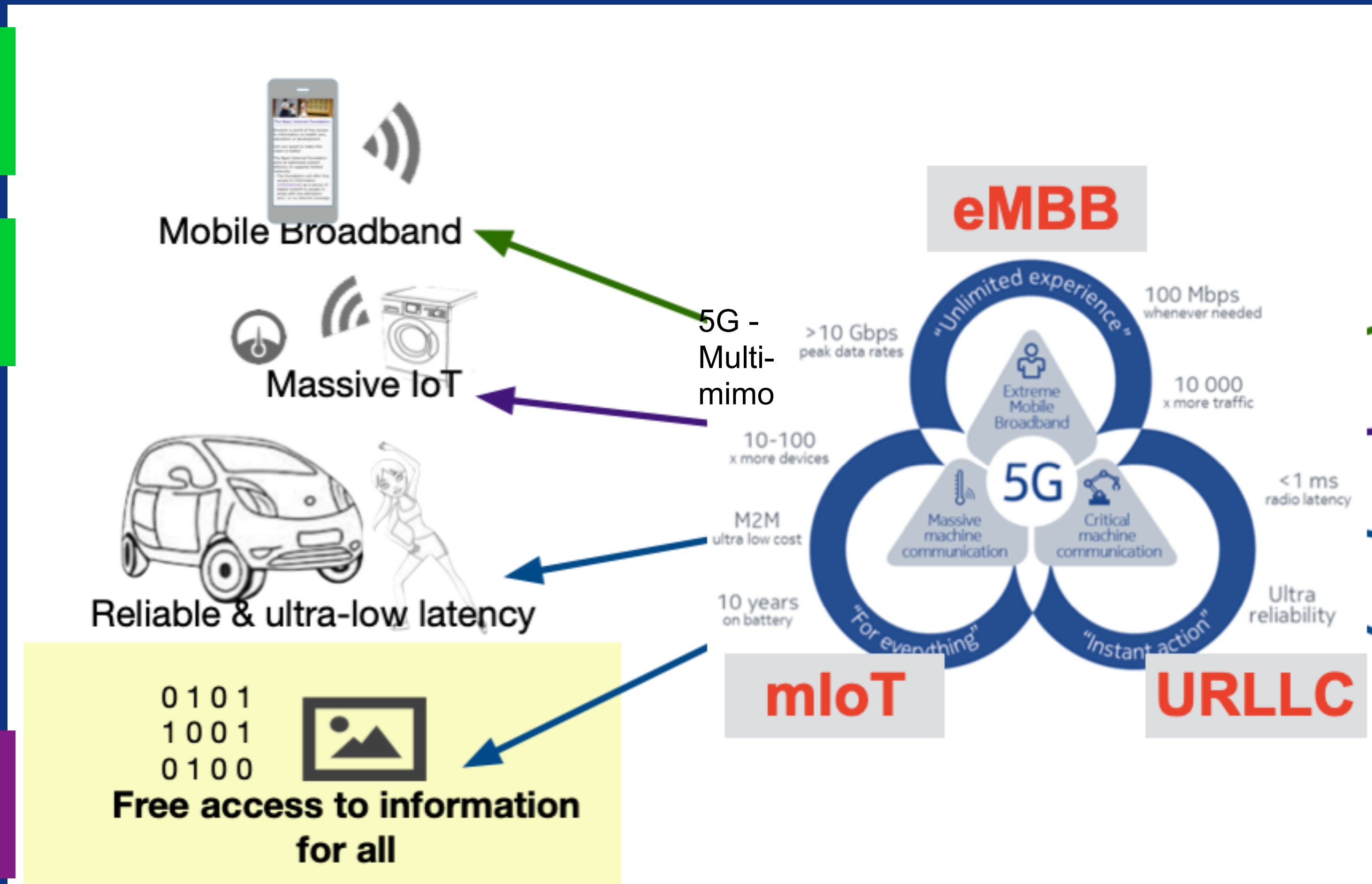


# Revisit Access

Road model: pedestrians & cyclists

Digital pedestrians, digital cyclists vs digital cars (broadband)

Internet Lite





# How can we “Connect The Future”?

## Specific focus: Girls & Women



World Summit of the Information Society - WSIS 2023



Doreen Bogdan  
Secretary General ITU



through  
**Community Learning &  
Living Labs (CLL3)**



# Digital Public Infrastructure (DPI)

Step 1:



[Source: <https://www.gatesfoundation.org/ideas/digital-public-infrastructure> ]

Step 2:



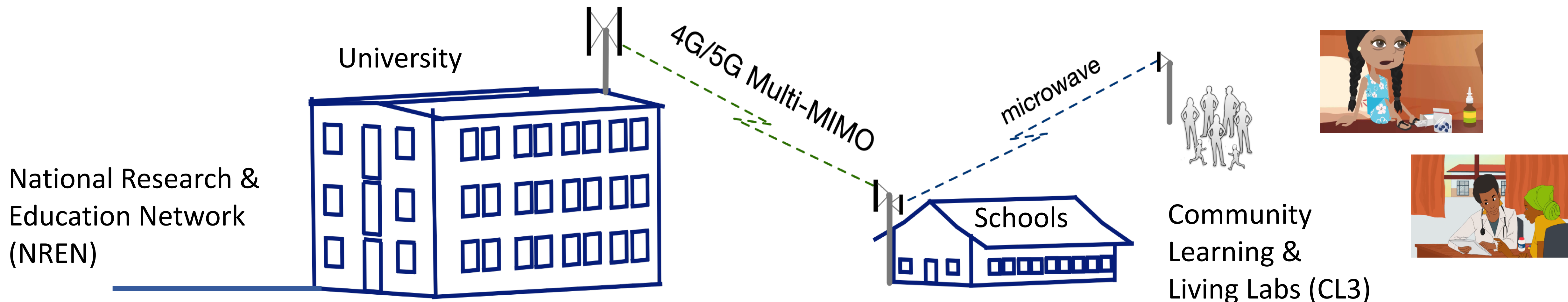


# Instantiation of Digital Public Infrastructure

collaboration by

- University to build Regional Competence Centres (RCCs) and connect via NREN and 4G/5G
- Mobile Operators to share infrastructure

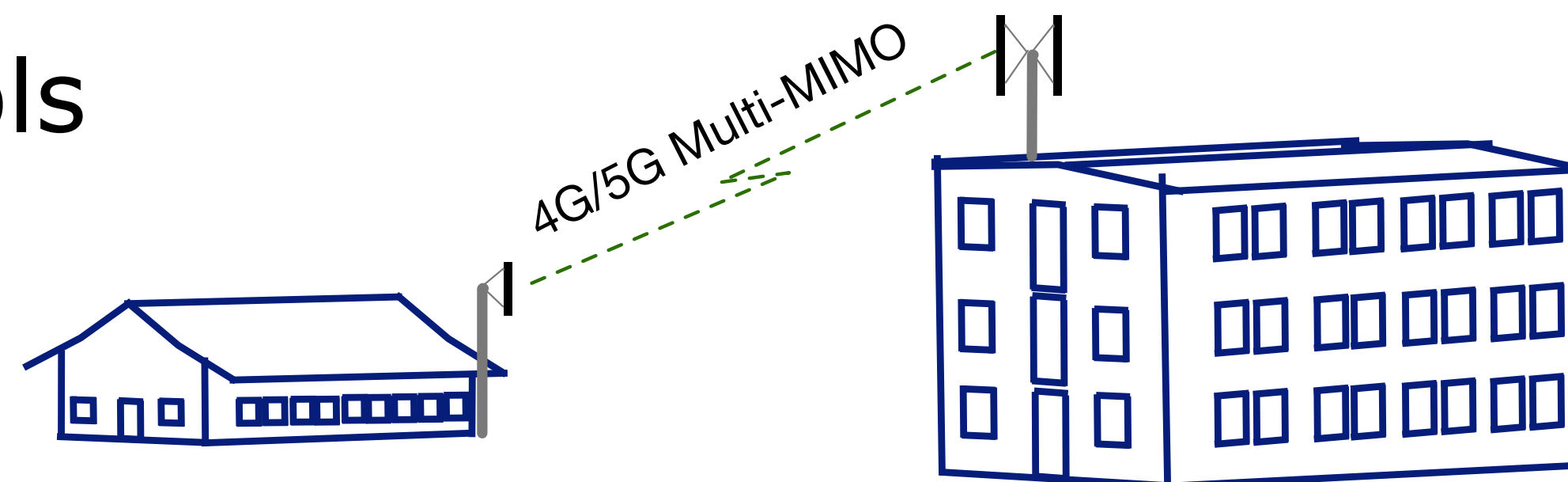
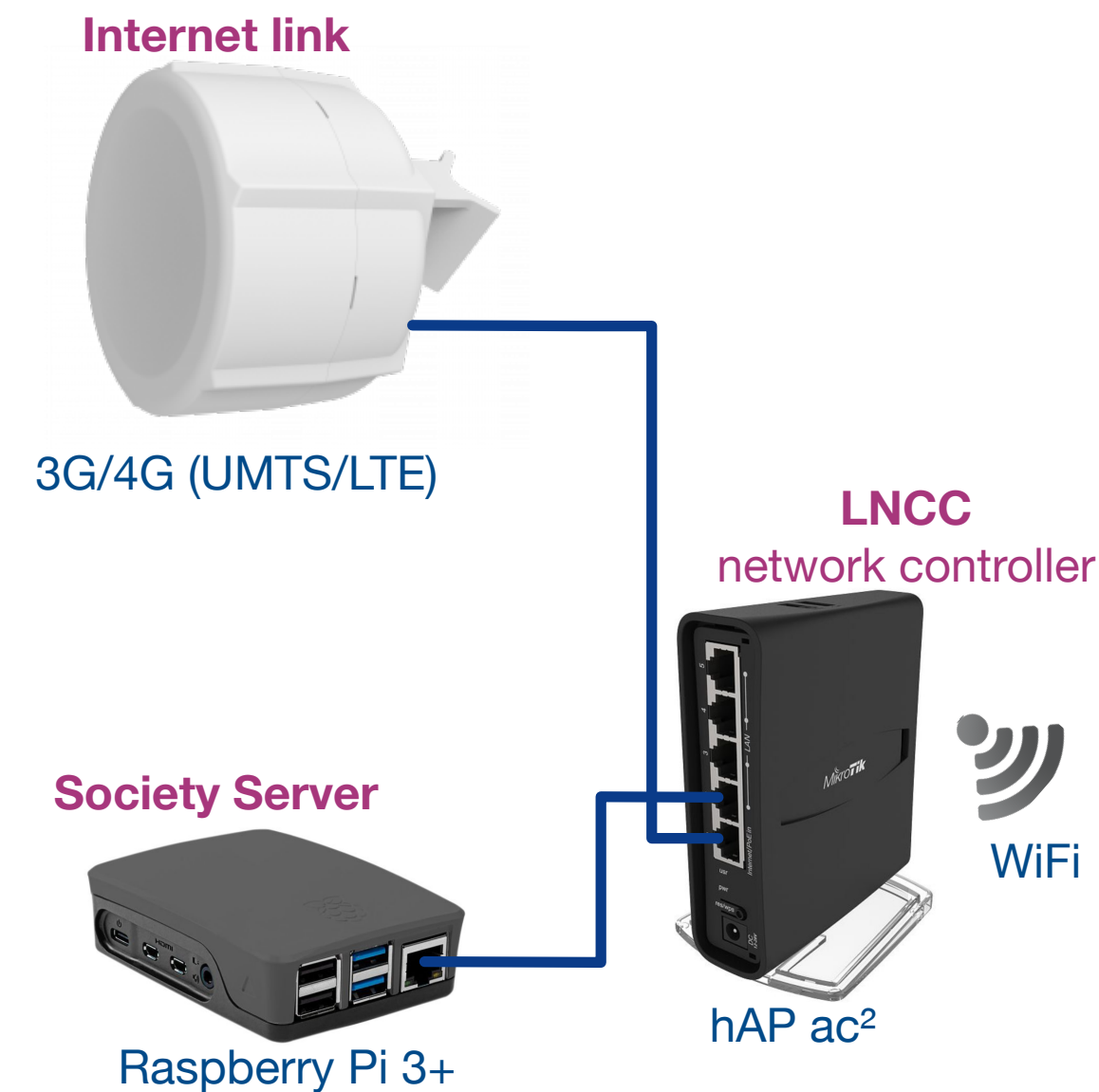
- Government to support School Connectivity & CL3
- NGOs to establish digital friends and empower the community





# Solving the Challenge of Access

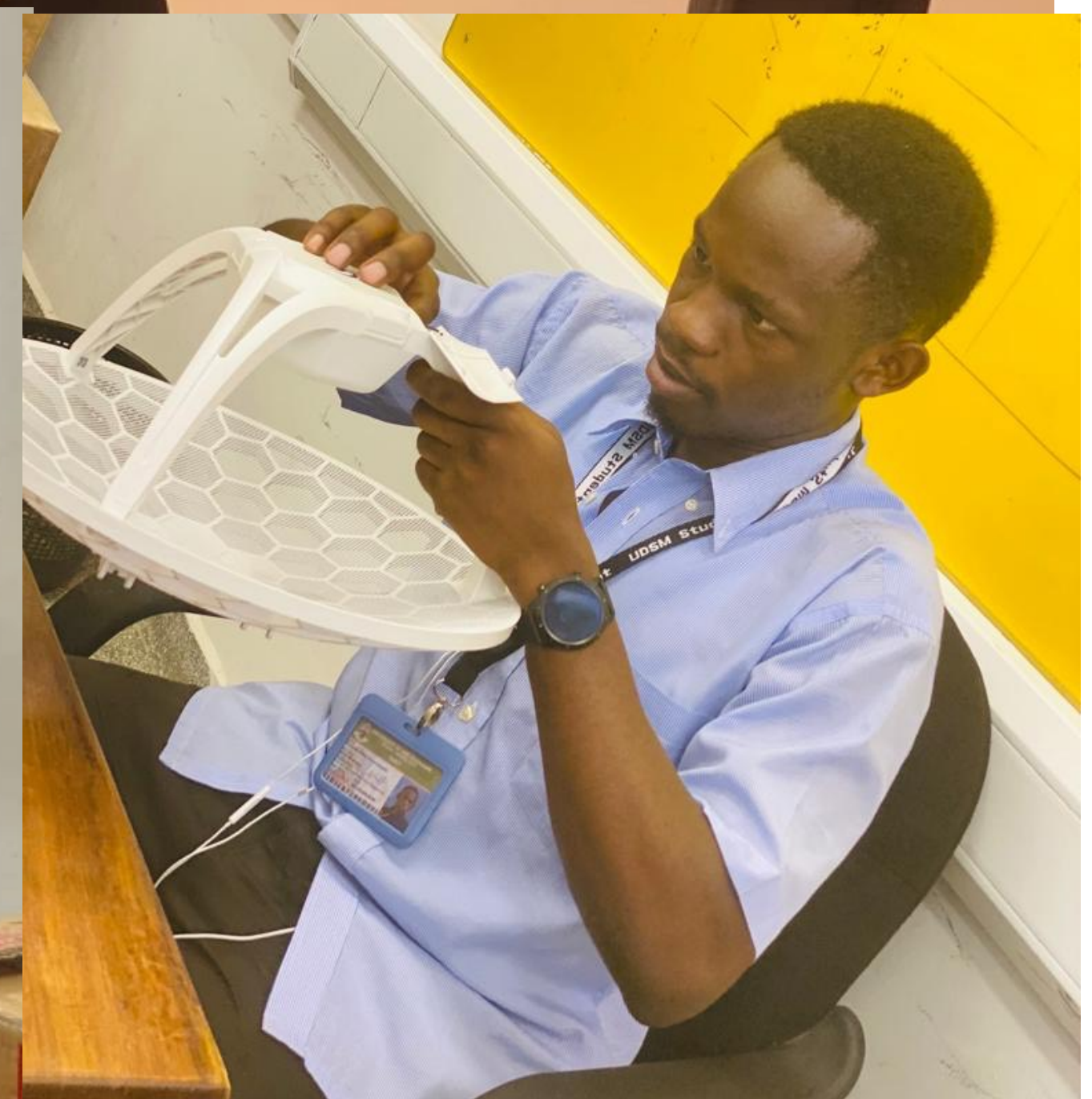
- ➔ Wireless information spot (InfoSpot)
  - Reaching out >20 km to 3G/4G network
  - Affordable solution: OPEX <20 USD/month
  
- ➔ Next: 5G access
  - University to schools





# Regional Competence Centre (RCC)

- Competence, Configure
- Install at schools/communities



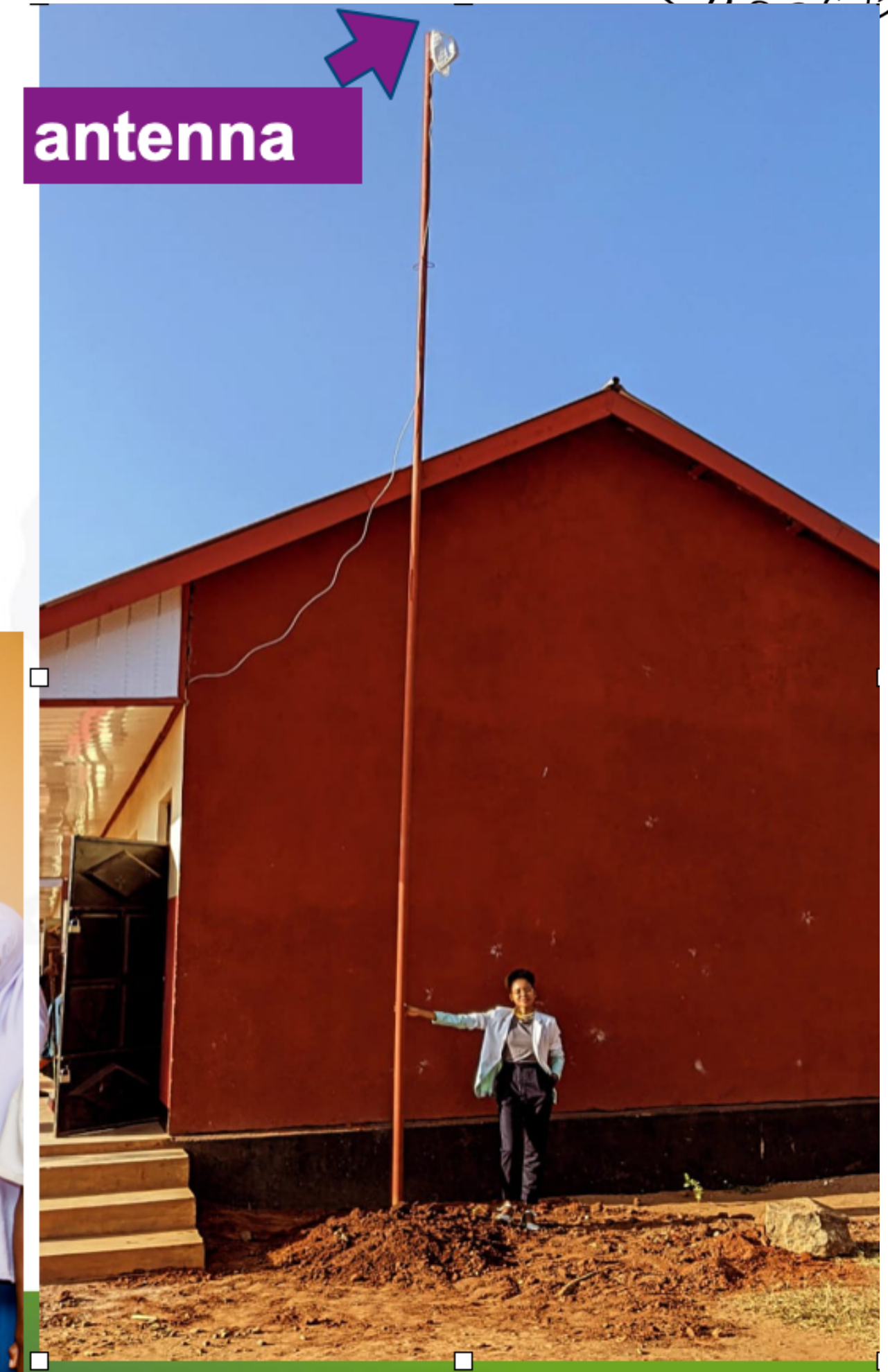




# Schools/Communities



- Connect the schools
- Create content
  - Health
  - Education, Energy
  - Gov. Services





# “Connect The Future” - Selela Market Place

antenna



- Antenna in 6 m height
- Reaches Tigo tower 20+ km away





# “Connect The Future ” Izazi



Antenna

Village office

Installation time: 1,5 h  
catching the signal from the Vodacom  
tower in Migoli (~10km away)



# Health Information at the InfoSpot



[Source: Christine Holst, UiO]



UiO : Global Health  
[DigitalGlobalHealth.no](http://DigitalGlobalHealth.no)



# Digital Antimicrobial resistance (AMR)

UiO:Health Relight funded (Arunima Sehgal Mukherjee)

foster Digital Health  
Education

- part of DigitalGlobalHealth.eu
- Digital Health Promotion (DHP) and community involvement
- here: AMR study with video as intervention



Figure 1: Scene from Antimicrobial resistance (AMR) animation



# 2) Providing the information through animations

## Snapshots from platform, HIV and Cysticercosis animations

[Mwanzo](#)
[Afya](#)
[Kuhusu](#)
[Wasiliana nasi](#)
[Repoti](#)
[Videos](#)

 English
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### Epuka Tegu

#### Kisababishi ya Tegu



Mnyoo bapa aitwae Taenia solium, husababisha binadamu kuugua vibaya sana. Binadamu hupata minyoo hao kwa kula nyama ya nguruwe mbichi au isiyoiva vizuri, yenye malengenge ya minyoo (cysts). Ndani ya utumbo wa binadamu, malengenge hayo hutoka katika nyama na kujishikiza kwenye ukuta wa utumbo na kufanyika minyoo ambao hukua na kutaga mayai.

#### Dodoso ya Tegu

Tafadhali jaza utafiti kuhusu Tegu

Jinsia yako ni ipi?

☐ A) Me

☐ B) Ke

Je, umewahi kusikia kuhusu minyoo aina ya tegu?

☐ A) Ndio

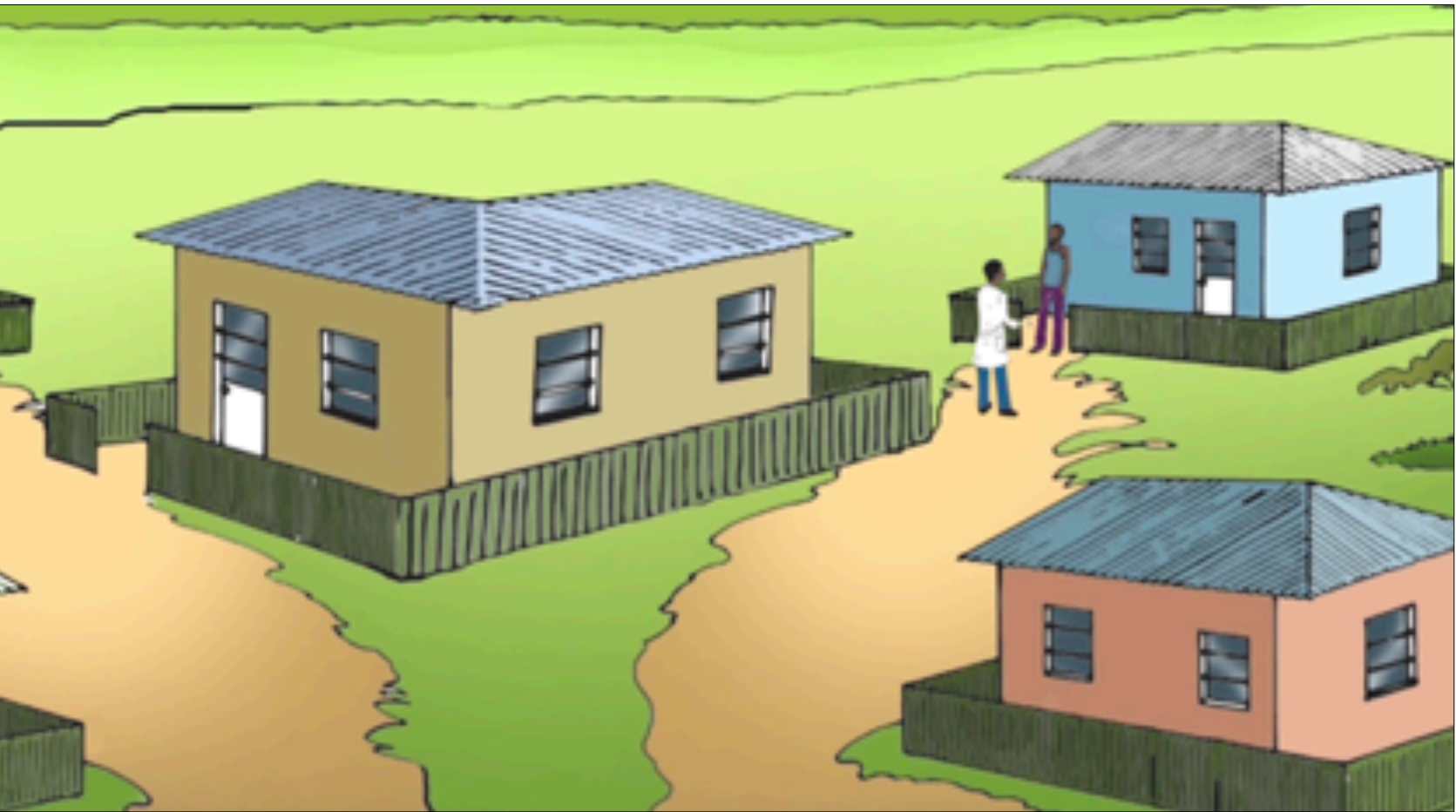
☐ B) Hapana

☐ C) Sijui

Je! Umewahi kusikia kuhusu minyoo ya tegu kwenye wanyama aina ya nguruwe?

☐ A) Ndiyo

☐ B) Hapana



Results: **Knowledge increase** in

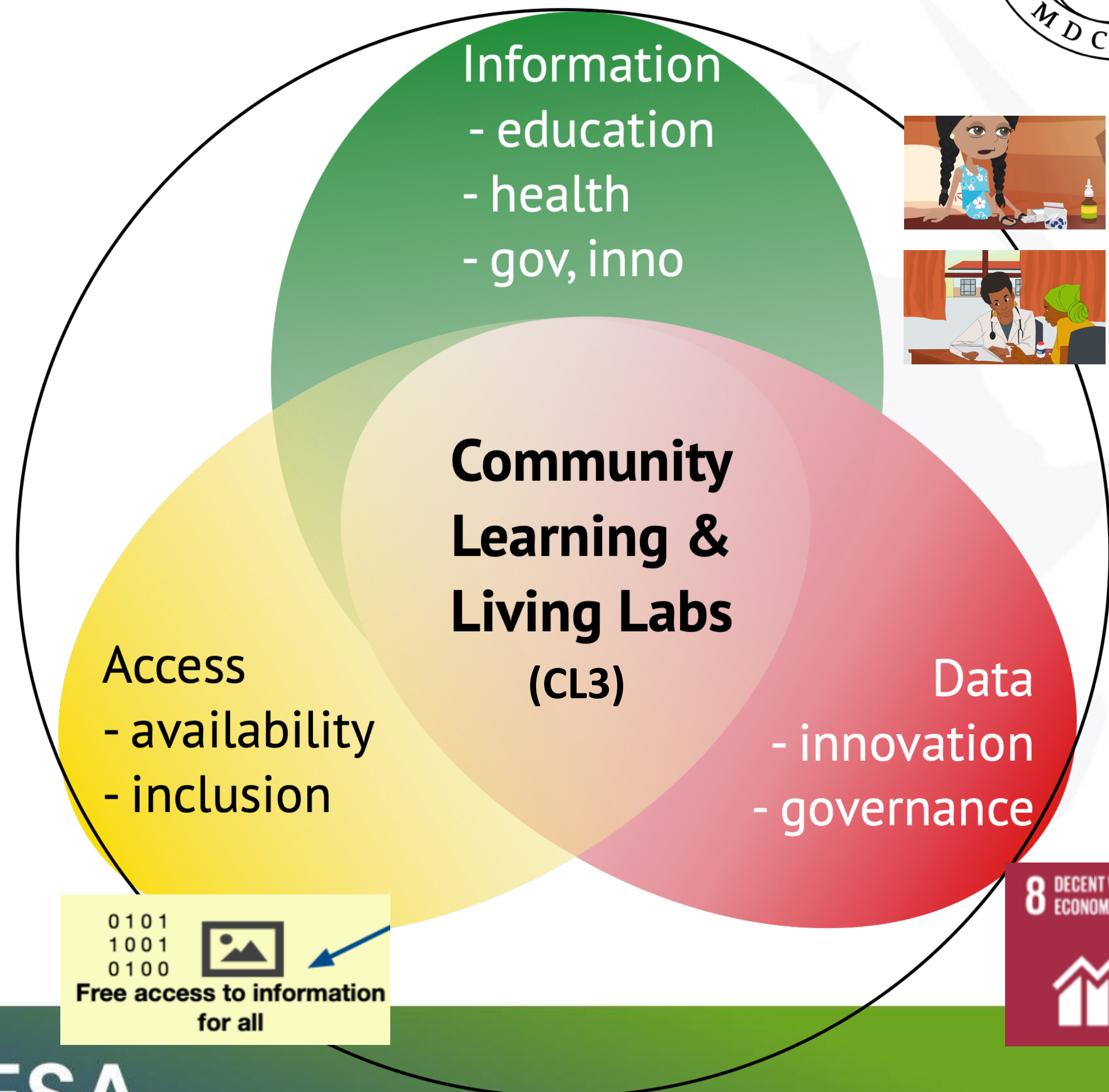
Disease	Knowledge Increase
Cysticercosis (TSCT)	60%
Tuberculosis	30%
HIV/AIDS	13%

[Source: Christine Holst, UiO (Nov2019)]



# Community Learning & Living Labs

- ➔ Trustworthy Access to Information
  - **Health**, Energy, Education
  - Agriculture, Entrepreneurship
- ➔ Inclusive & free access
  - for everyone
- ➔ Innovation
  - Adopt the model of the road
  - Free access to digital pedestrians and cyclists







# Invitation - let's cooperate for Health Information for All



DallE - "African Girl enjoying trusted Internet on her mobile"