



UiO : **Institute of Health and Society**
University of Oslo

World Summit, Ministerial Global Governance Summit, 26-28Jun2020
2.Building Resilient Health Systems: Global Public Health

Digital Health and Community Involvement for Resilient Health Systems

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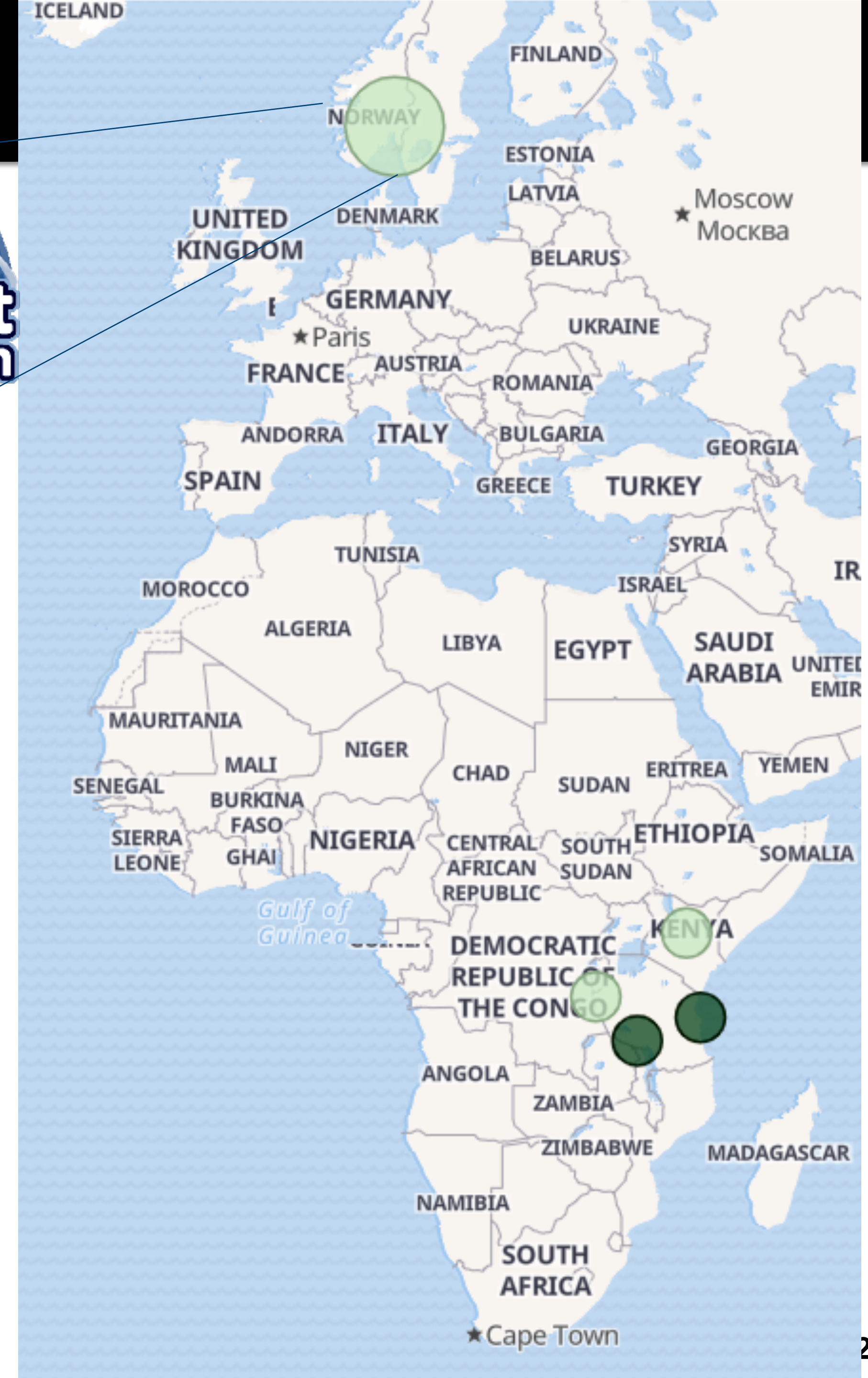
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UiO : **Global Health**

Overview

- The Nordic Model - inclusive
- Digital Health
 - ➔ Four dimensions in digital health
 - ➔ [HelseNorge.no](https://helsenorge.no) - Digital Portal
- Digital Health Promotion
 - ➔ Health Information for All
 - ➔ Business Model
- National Knowledge Portal
 - ➔ Health, Education, digital inclusion
 - Access, Skills, Regulations & Inclusion

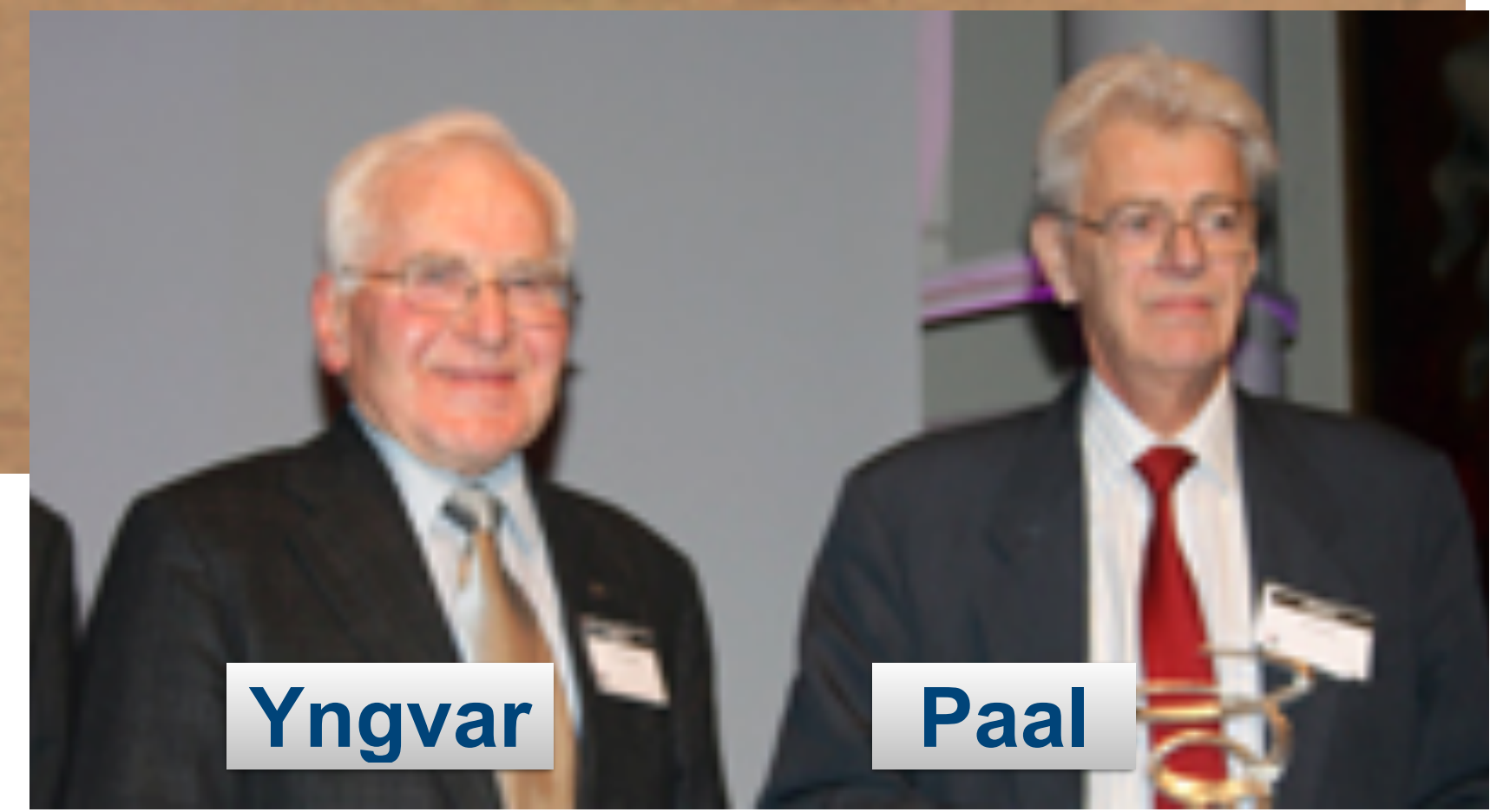
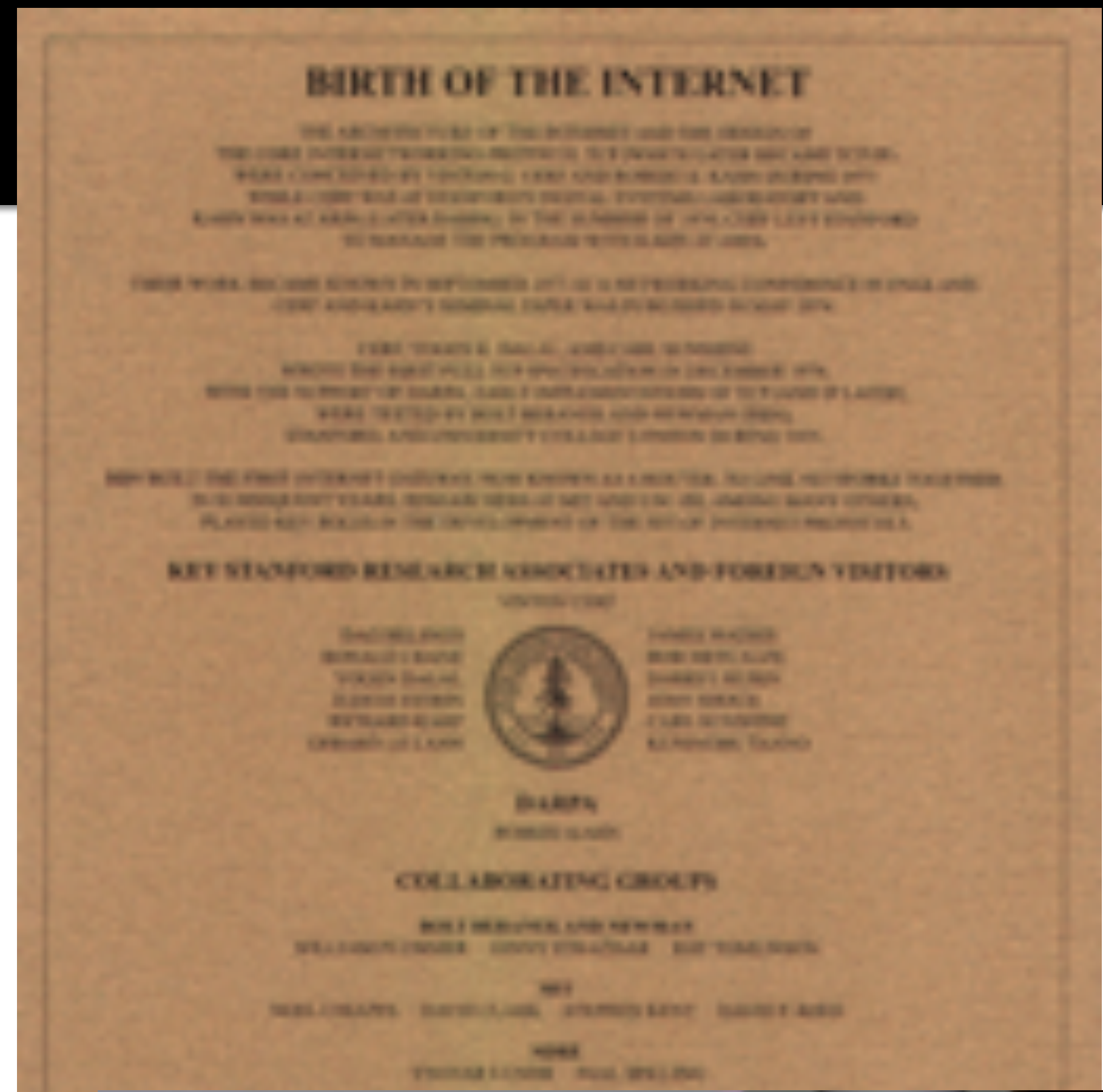


Internet and the Nordics

- 1. Arpanet Connection to **Kjeller** (June 1973)
- List_of_Internet_pioneers [Wikipedia]
 - Yngvar Lundh, **Paal Spilling**
- Application development
 - .php, OpenSource, Linux, Skype, Spotify
 - **OperaSoftware**, FAST Search
 - Nokia, Ericsson
 - **Telenor**, TeliaSonera
- Mobile Internet



GSM
 Mobile Applications



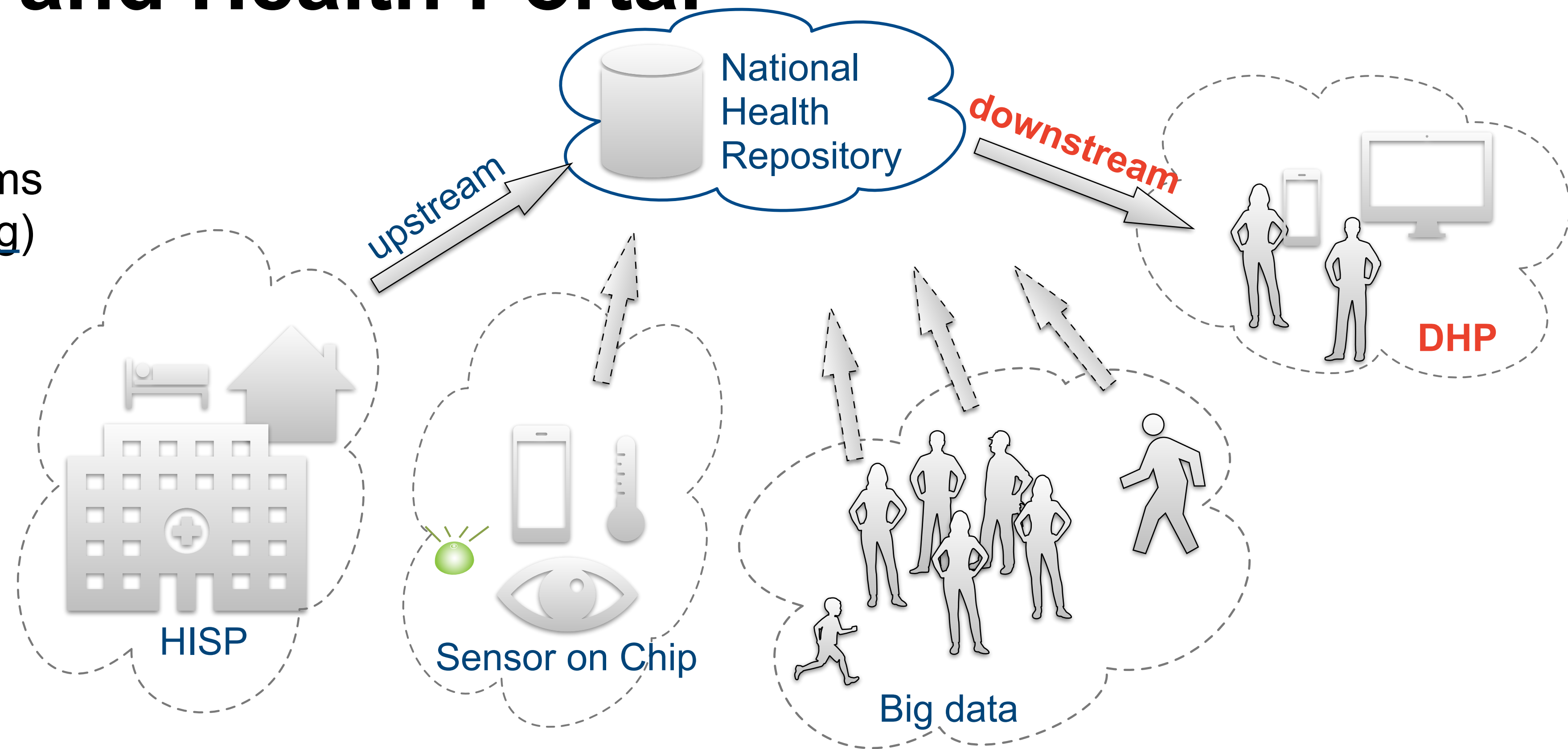
Empowering people for the **Digital** Society



Health Platforms and Health Portal

- Upstream
 - ➔ Health Information Systems Platform (HISP, [DHIS2.org](https://dhis2.org))
- Sensor on Chip
 - ➔ Bio-sensor
 - ➔ integrated analysis
- Big Data
 - ➔ Epidemiology
 - ➔ Artificial Intelligence (AI)
- Downstream
 - ➔ **Digital Health Promotion (DHP)**

Community Health



Recommendations for EAC from East Africa Health conference (2018)

- Recommendations 1-9, digital health:
- 5. Formulation of regional and partner states policies that govern integration of the **digital health initiative** into **health system**.
- 6. Develop a **platform for digital inclusion** where **communities** have **full access to information** to surveillance and disease management
- 9. East African member state to promote **digital health**



[Source: Bernard Ngowi (NIMR)]

- How to bring Health Information and other non-profit content to everyone in the society?

*co-funded by Kjeller Innovasjon
and University of Oslo*

- Internet (1973), Opera (1994),
Basic Internet (2014)
- focus on digital inclusion

Our vision is

to improve **the life of **every** human**

through free **access to information**

on the **Internet**

United Nations High Level Panel on Digital Cooperation

- Jun2019 report: Recommendations
 - ➔ Inclusiveness
 - ➔ Digital Public Goods (DPGs)

1A: We recommend that by 2030, **every adult** should have **affordable access** to digital networks, as well as **digitally-enabled financial and health services**, as a means to make a substantial contribution to achieving the **SDGs**...



Nikolai
Astrup

Melinda
Gates

Jack
Ma

Bogolo
Kenewendo

Nanjira
Sambuli

Akaliza
Keza Ntwari

Vint Cerf

1B: We recommend that a broad, multi-stakeholder alliance, involving the UN, create a **platform** for **sharing digital public goods**, ...

EAC:

- Akaliza (RW)
- Nanjira (KY)
- Bogolo (BW)

Challenges

- Costs of Access
 - ➔ School connectivity (SDG indicator 4.A.1)
 - ➔ Digital Health for primary health facilities
 - ➔ Community involvement/digital transformation
- Digital Content
 - ➔ Health information
 - ➔ Education/Community info
 - ➔ Digital Public Goods (UN, UNICEF)
- **Free access to National Knowledge Portal**
 - ➔ Access to information - a human right





The intervention – Main objectives

- Increased health knowledge → health literacy
- Better use of health care services
- Promote early treatment

= Strengthen the health care system
and Disease prevention



Target Groups in Digital Empowerment

- We bring Internet access to rural villages with **high rates of illiteracy**.
- People of all ages and genders
 - ➔ Simple solution for everyone
 - ➔ primary focus on the **young generation, especially girls and women**.
- Further stakeholders are **governmental institutions** (e.g. ministries of education, health, agriculture, rural development), **village chiefs** and other **local authorities** like school directors.



Local presence - Village Platform

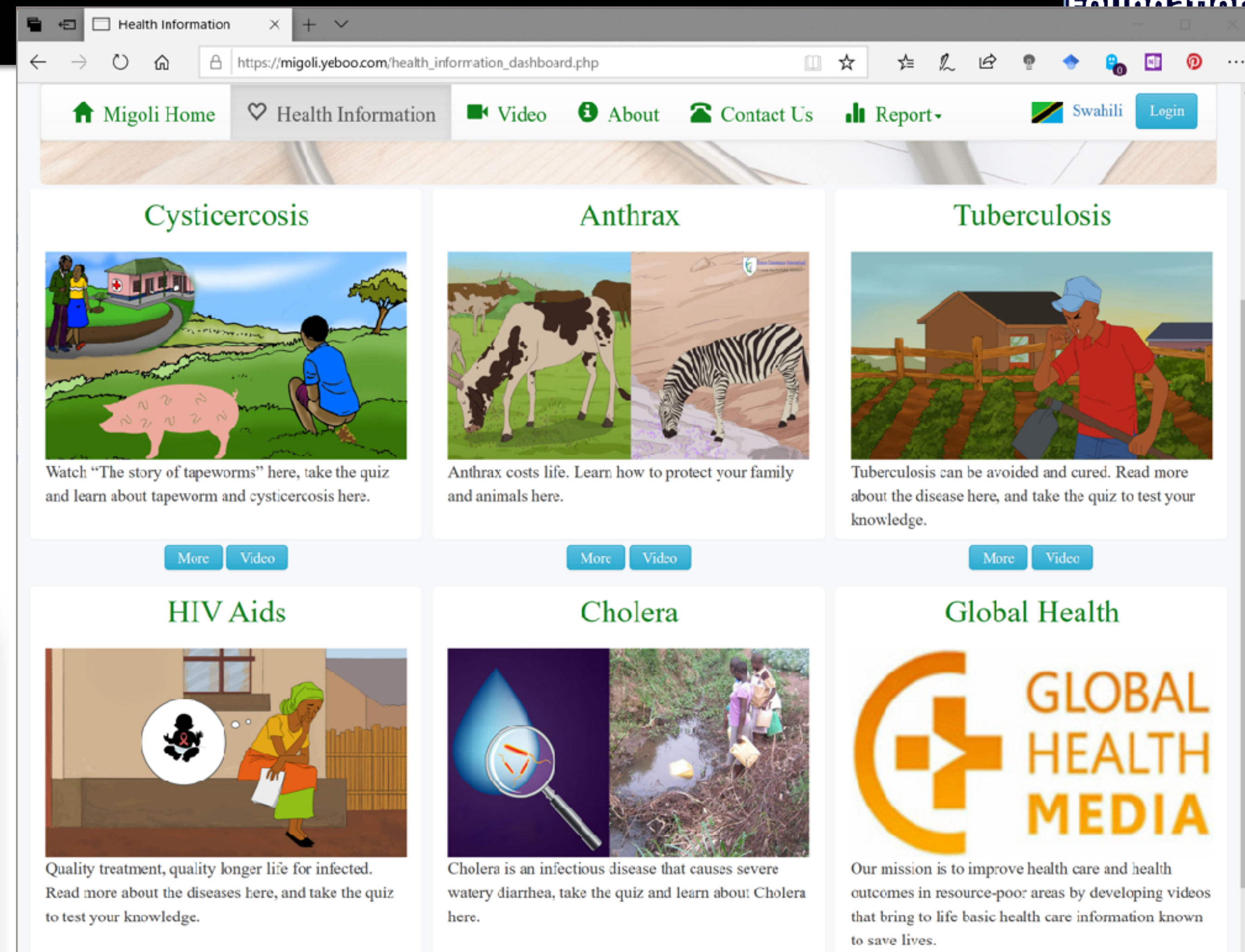
<http://Yeboo.com>



**Village server
with locally stored
information on
health care etc.**

**The website will
contain locally stored
information on**

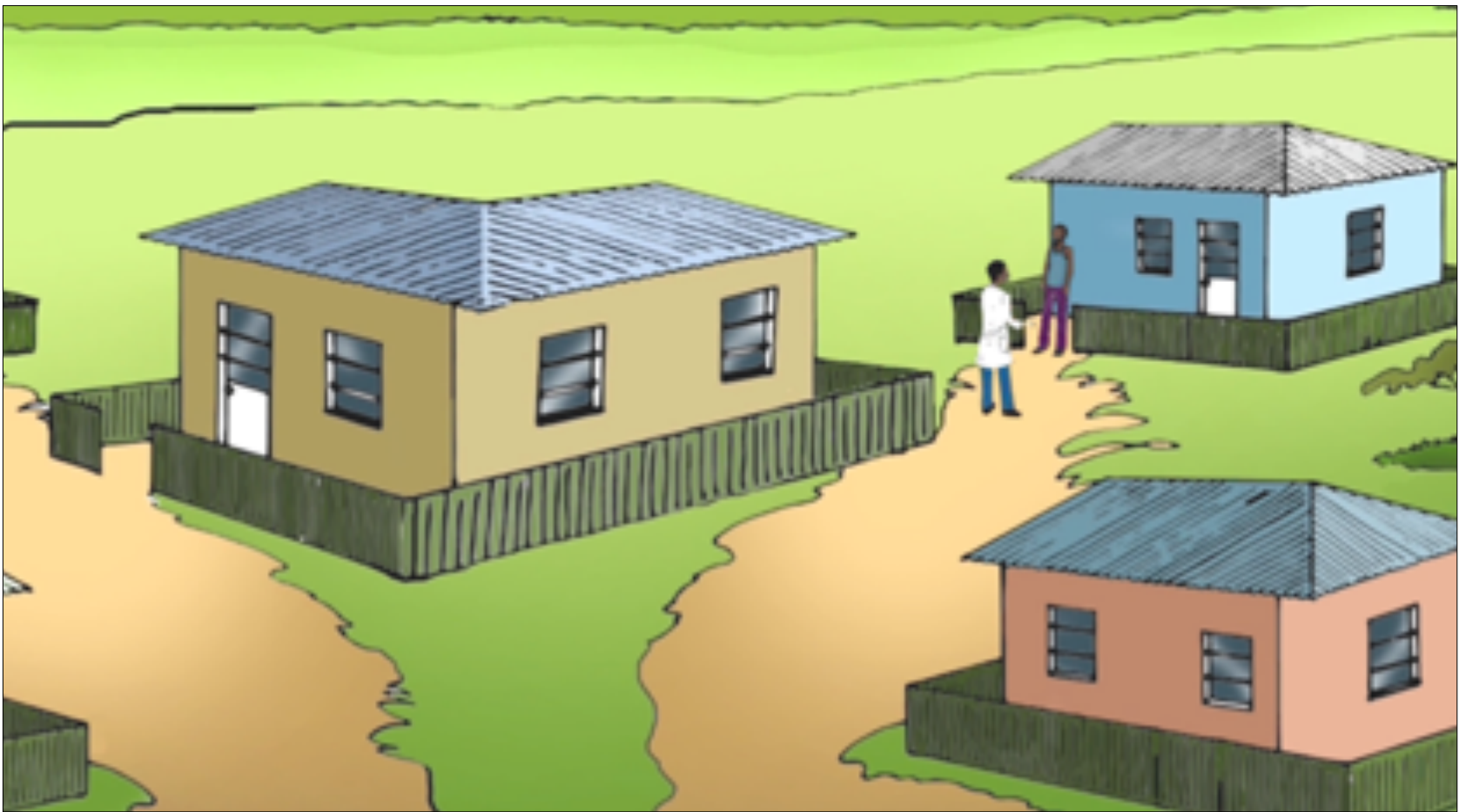
- Health
- Entrepreneurship
- Education
- Agriculture
- Financial inclusion
(e.g. via Women
Community Centers)



Exemplary: Digital Health Information



Snapshots from website, HIV and Cysticercosis animations



First Results: **Knowledge increase in**
Cysticercosis (TSCT) **60%**
Tuberculosis **30%**
HIV/AIDS **13%**

[Source: Christine Holst, UiO (Nov2019)]



Preliminary findings from intervention villages: Number of participants with correct answers, before and after exposure

	Before exposure	After exposure	Increase
HIV / AIDS	234 (78.5%)	274 (91.9%)	40 (13.4%)
Tuberculosis	192 (64.4%)	280 (94.1%)	88 (30.0%)
<i>Taenia solium</i> cysticercosis/taeniosis	49 (16.3%)	225 (75.3%)	176 (60.0%)

First Results: **Knowledge increase** on

Cysticercosis	60%
Tuberculosis	30%
HIV/AIDS	13%

Calculated only on questions with one correct option, not multiple choice questions.
Preliminary results have not yet been adjusted for confounders (age, gender, education etc.)

Example: Corona/COVID-19 video for African countries

YouTube:
<https://www.youtube.com/watch?v=Bc3ojfPRlc>

Download (16:9)
<https://owncloud.basicinternet.org/index.php/s/4gB1Zdux6Clx1yR>

Download (social media)
<https://owncloud.basicinternet.org/index.php/s/jERKYmObsGcePBH>



Step 1: We solved the **problem of access**

- Internet Lite
- One Information Spot per village
- Free Access to Health & Education

Success story: Selela Market Place



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

“Connect the Unconnected” Izazi



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

Antenna

Village office



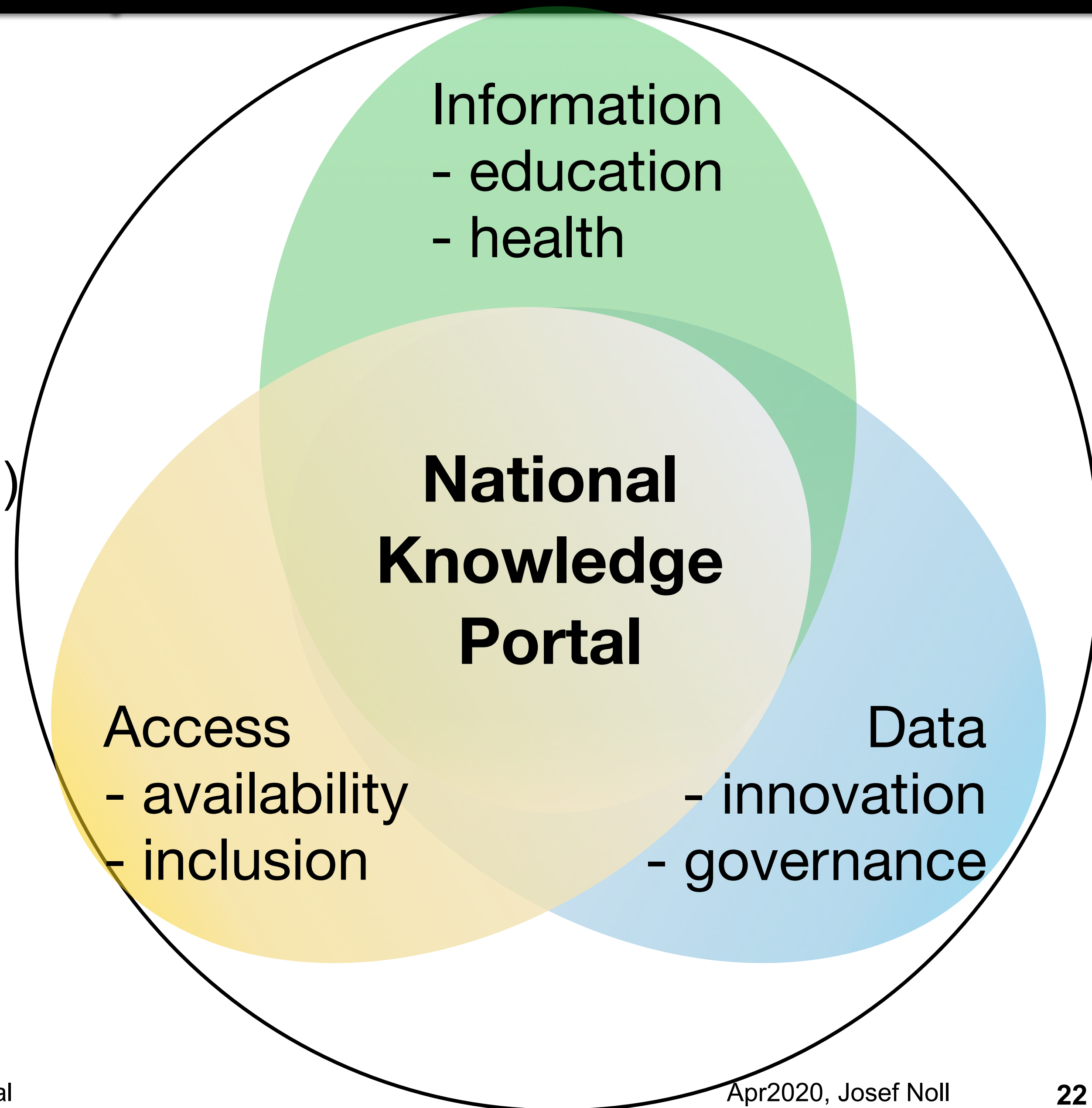


Step 2: Integrated Approach for Digital Health Promotion for All

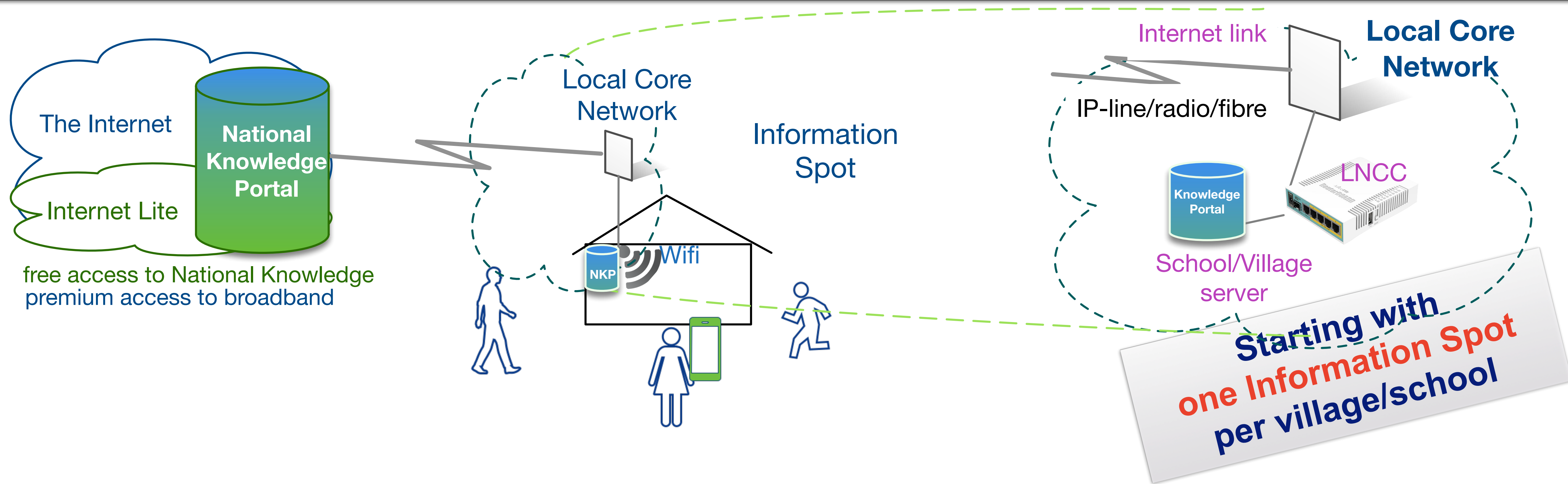
- National Knowledge Portal
- “Access, Skills, Regulation & Inclusion”

National Knowledge Portal

- Repository for Health Data
- Trustworthy Health Information
 - ➔ Source for Digital Health Promotion (DHP)
 - ➔ Education, Digital Public Goods (DPGs)
- Regulatory Framework
 - ➔ Free access to Knowledge Portal



Digital Inclusion Free Access to the National Knowledge Portal



- Free access to the **National Knowledge Portal**
 - ➔ **Architecture** with **lite**weight and **heavy** content

- Ensure: digital inclusion
- Ensure **Network Neutrality**
 - ➔ Content type filtering
 - ➔ text, picture vs broadband, streaming

COVID-19 response Implementation in Ethiopia

- Government Ethiopia - Agreement
 - ➔ “free access to health & education”
 - ➔ Ministry of Health
 - ➔ Ministry of Education
- Ethio Telecom offers “zero rating”
 - ➔ Health (MoH): MoH.gov.et
 - ➔ Ephi.gov.et & Covid19.et
 - ➔ Education: National Digital Library
NDL.ethernet.edu.et
- follow-up from discussions after African Innovat



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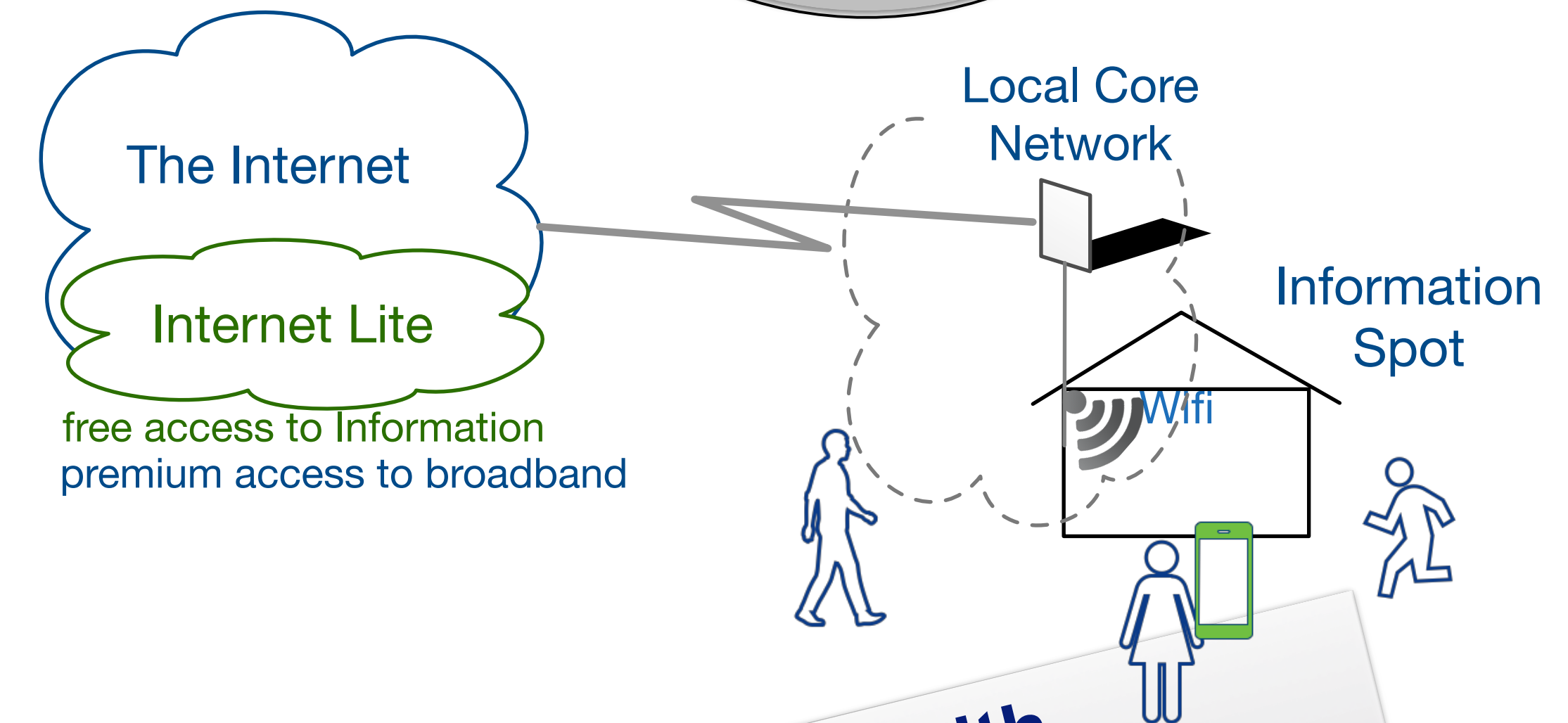
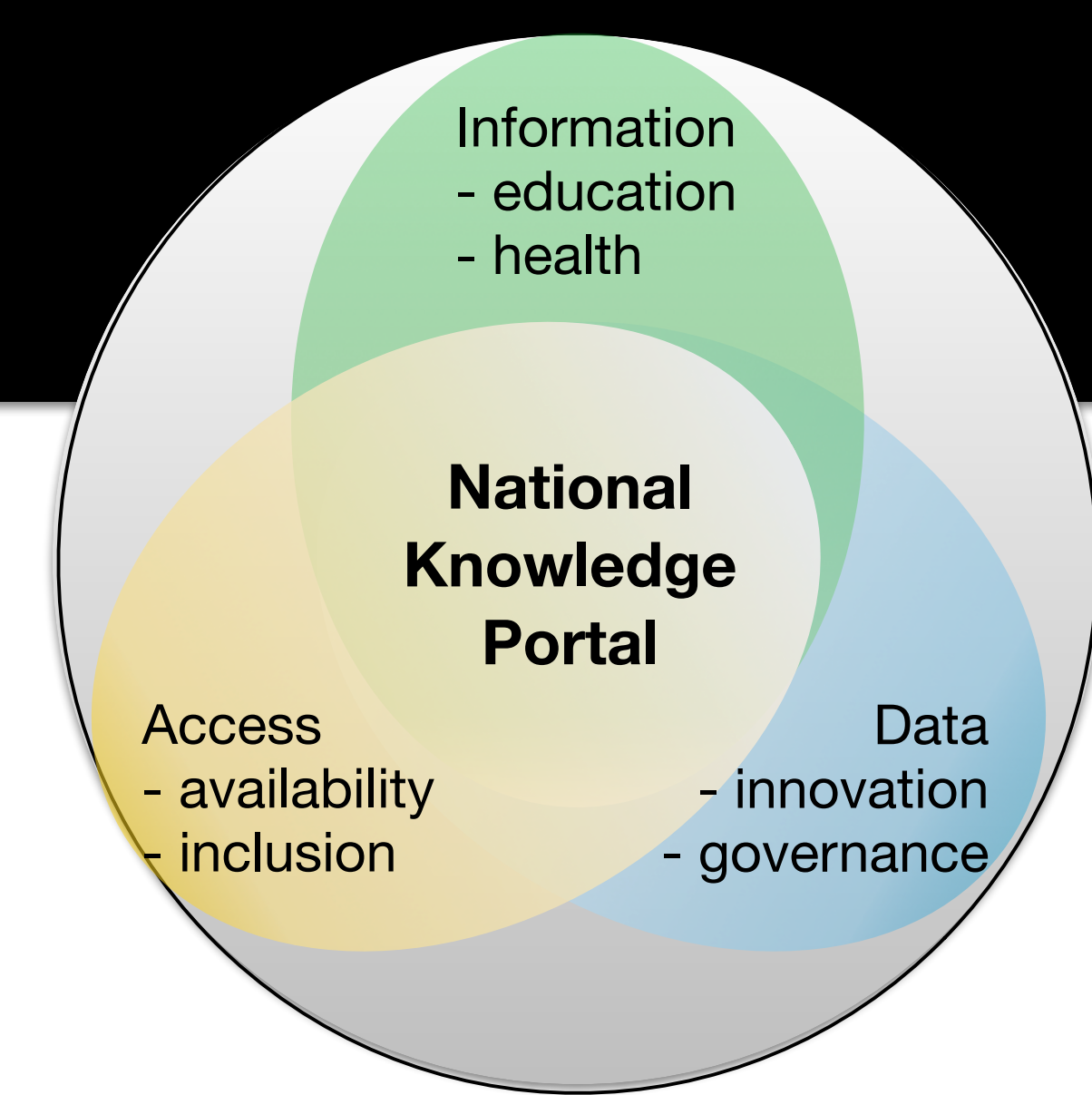
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Conclusion

“Digital Health Promotion for All”

- Health Platforms
 - ➔ Upstream, Sensor-on-chip, Big Data
 - ➔ Downstream, Digital Health Promotion
- National Knowledge Portal
 - ➔ Freemium Model for Access
 - ➔ Free: text, pictures & Knowledge Portal
 - ➔ Premium: broadband services
- School/Village/Health Information Spots
 - ➔ Free access to National Knowledge Portal
 - ➔ Health, Education, Entrepreneurship



**Starting with
one Information Spot
per school/health facility/
village**



Core people of our DigI team (11 partners from 9 countries)



Christine Holst
UiO - Norway



Dr. Bernard Ngowi
NIMR - Tanzania



Prof. Josef Noll
BasicInternet
UiO - Norway



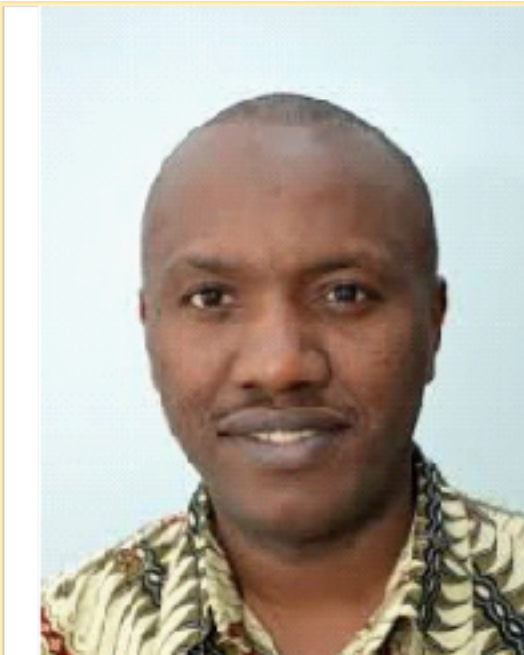
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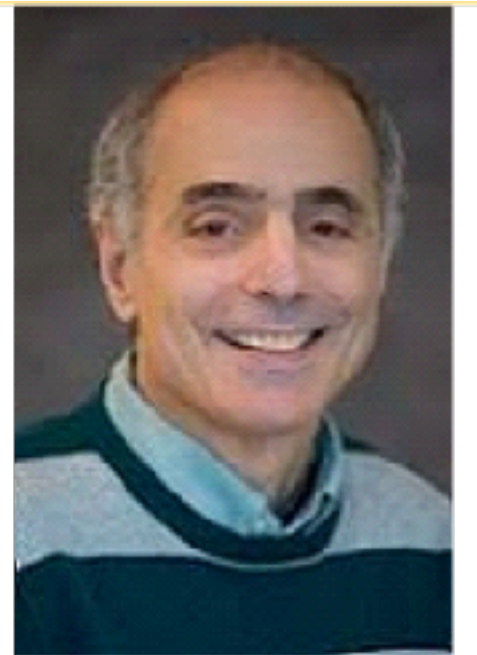
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Dr. Maurice Isabwe
FCI - Rwanda



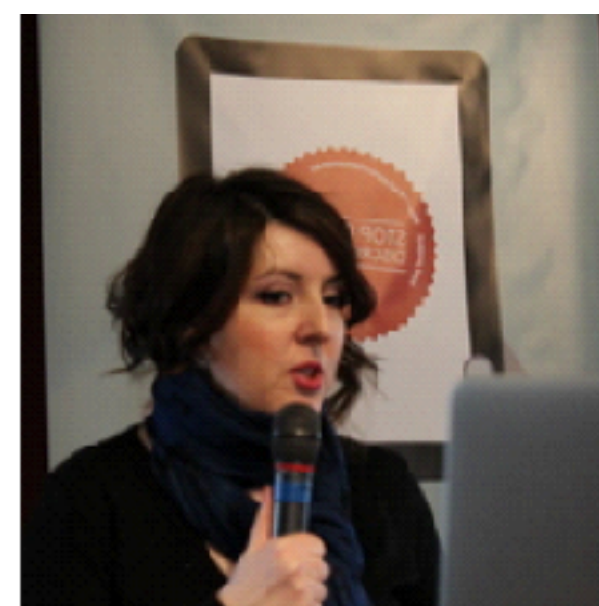
Dr. Peter Cardellichio
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Mrs. Flora Kajuna
SUA - Tanzania



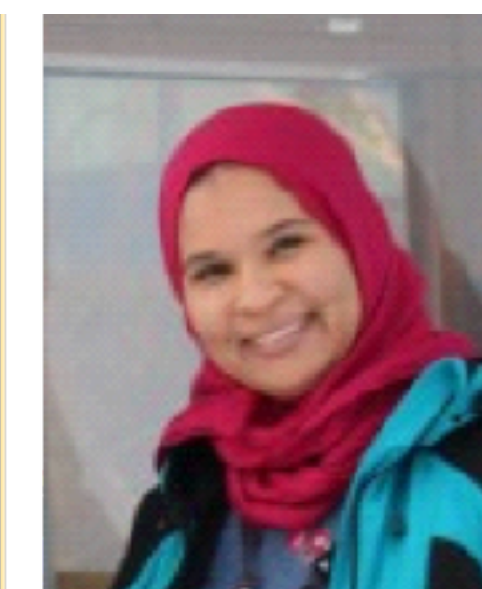
Dr. Felix Sukums,
Muhas - Tanzania



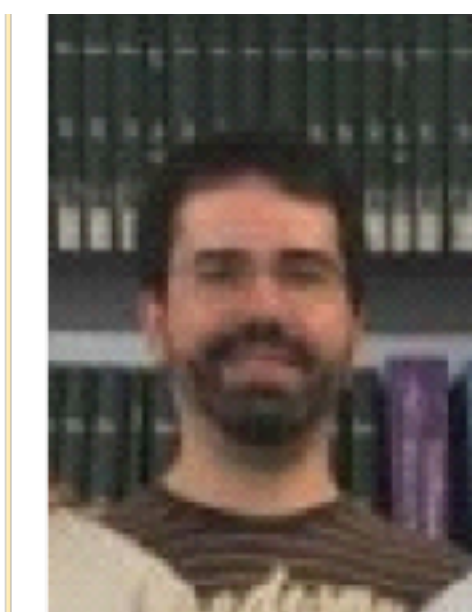
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