

UiO : **Department of Technology Systems**
University of Oslo

Norwegian Global Health Conference, 26Oct2021, Trondheim

Digital Health Promotion in a Global Perspective

Josef Noll,

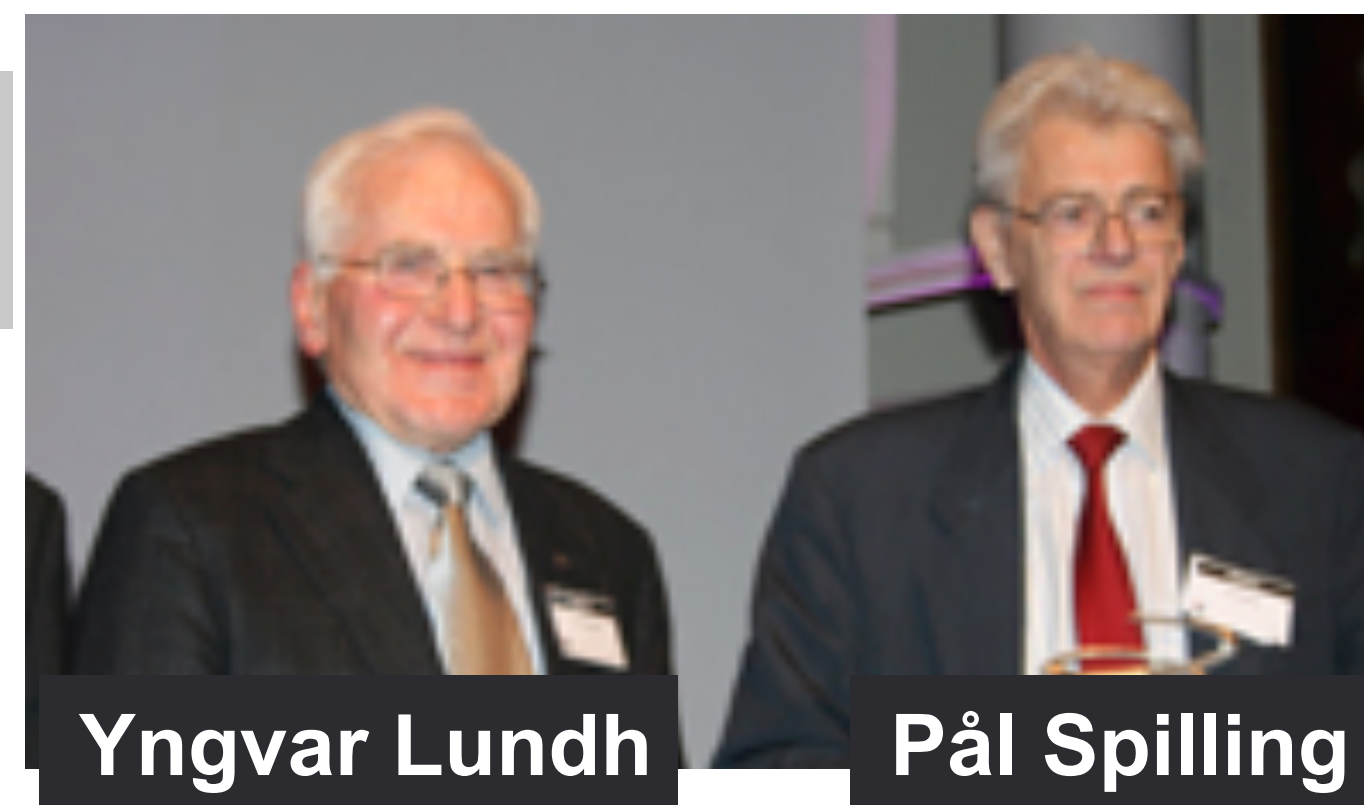
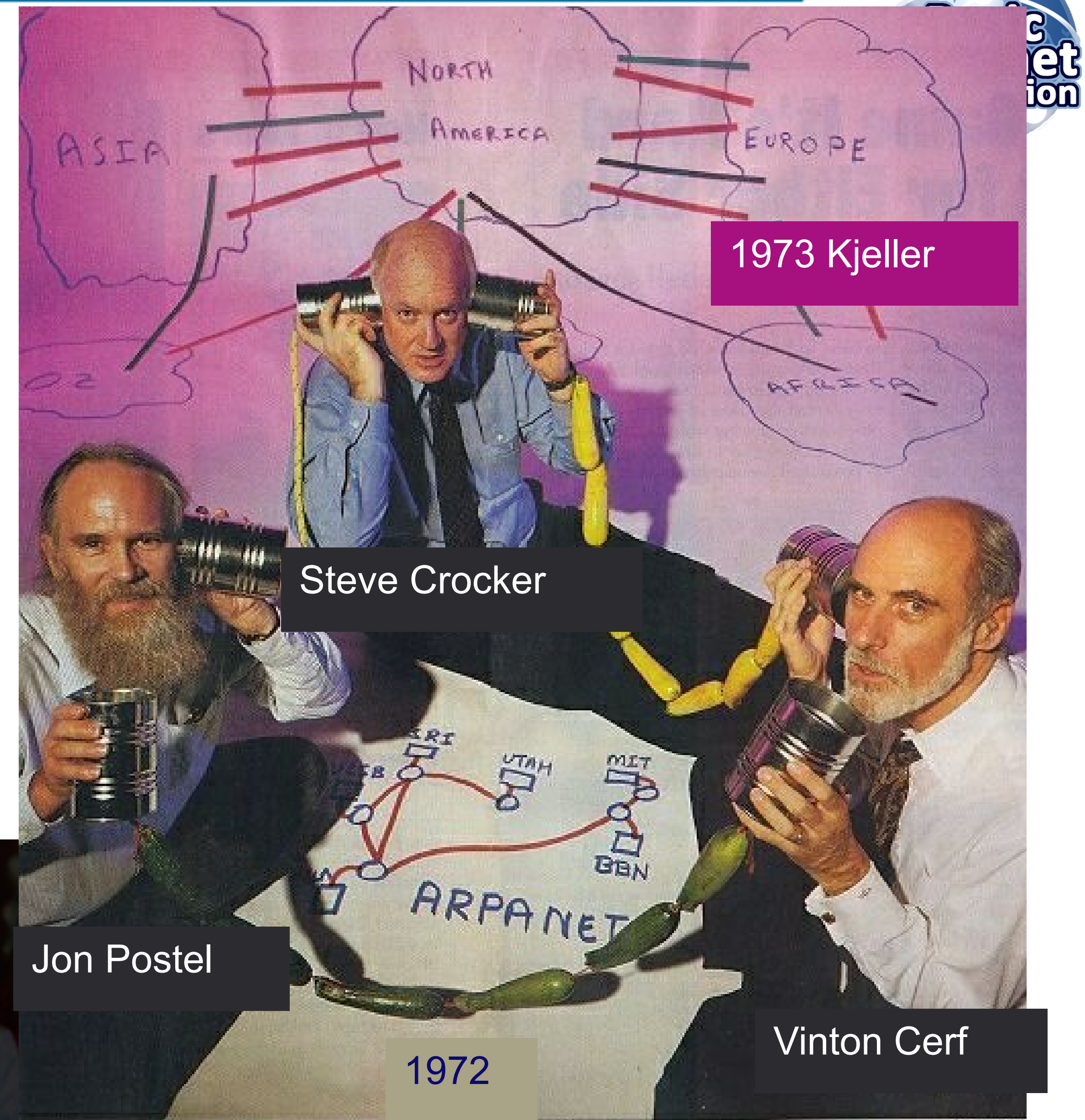
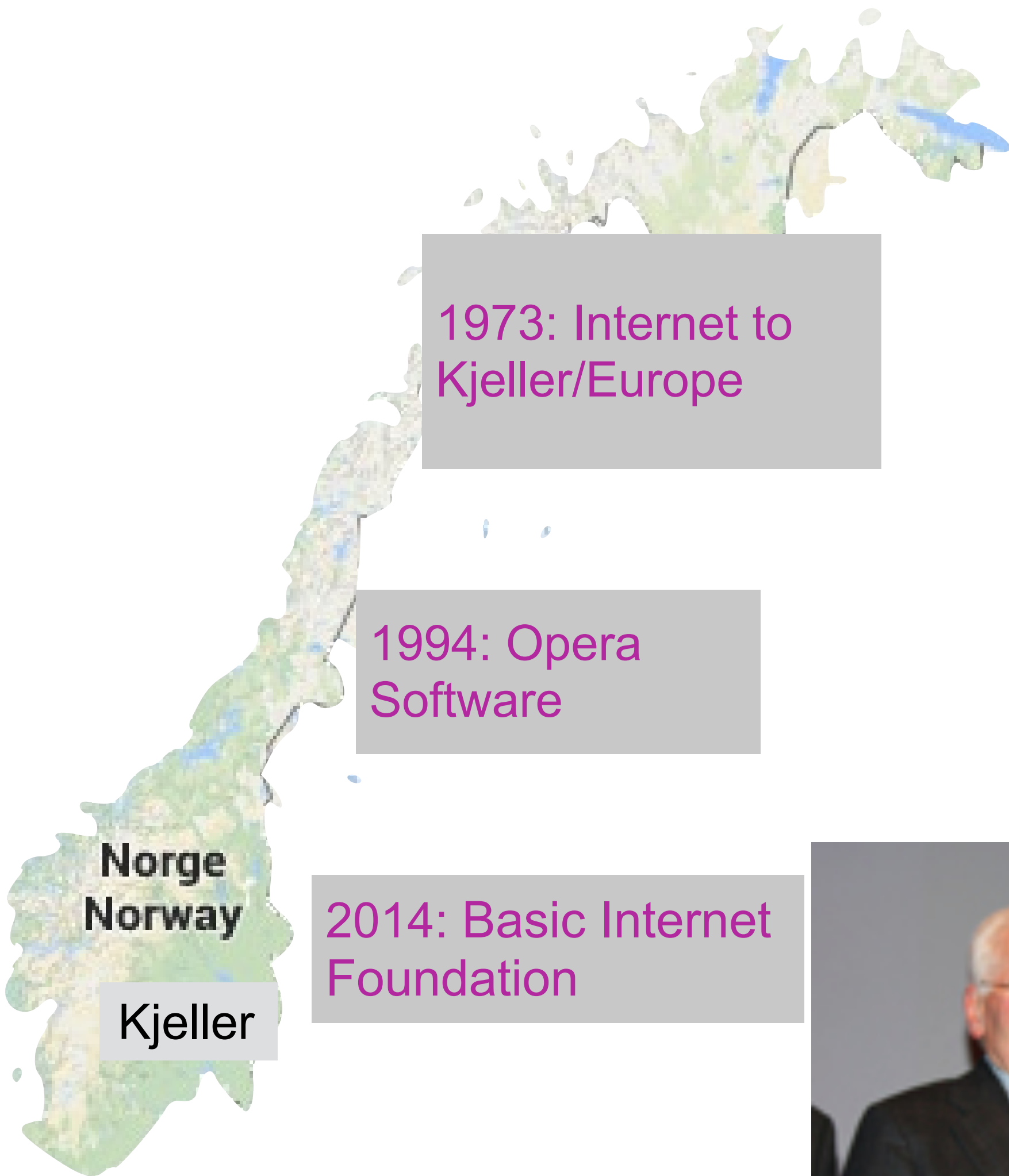
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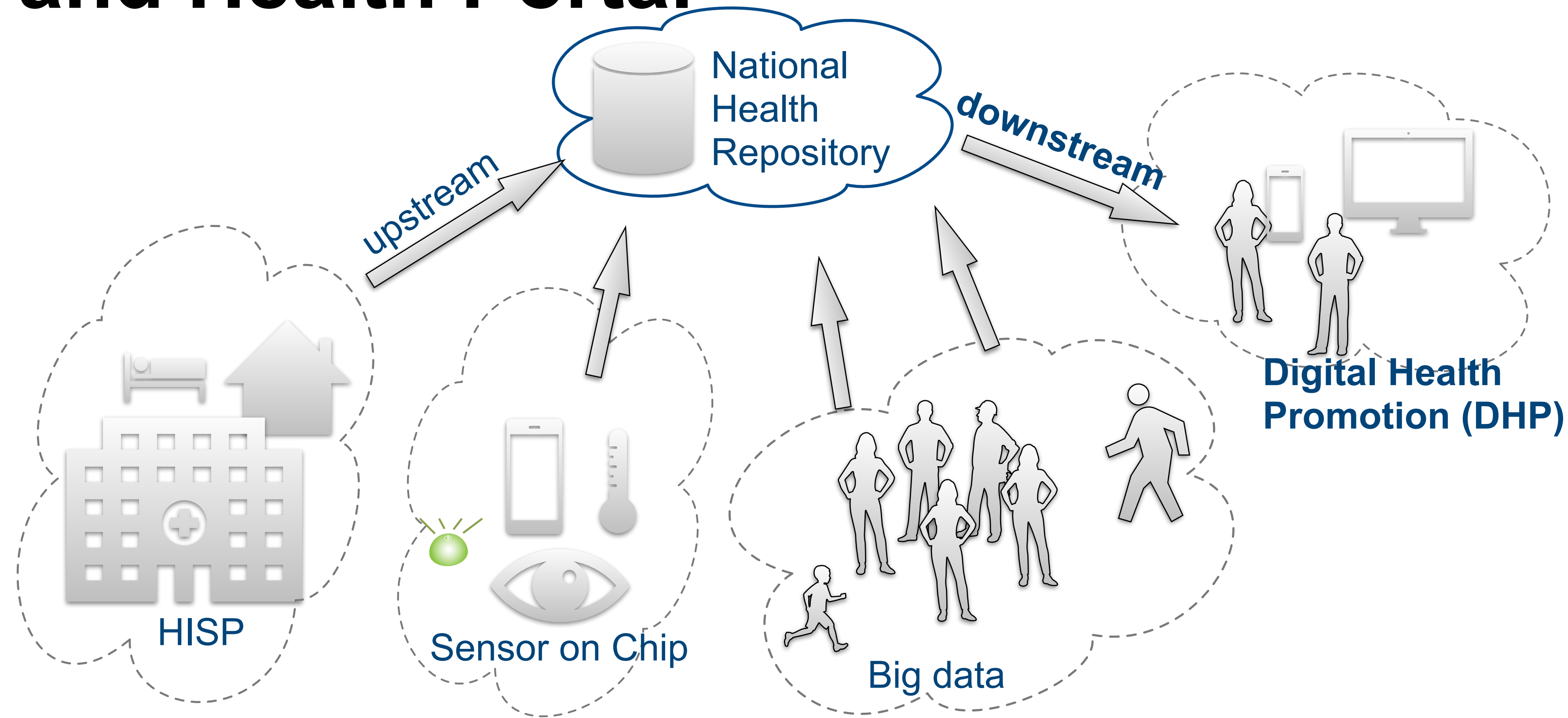
Next Generation Internet as basis for empowerment and trust



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

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)**



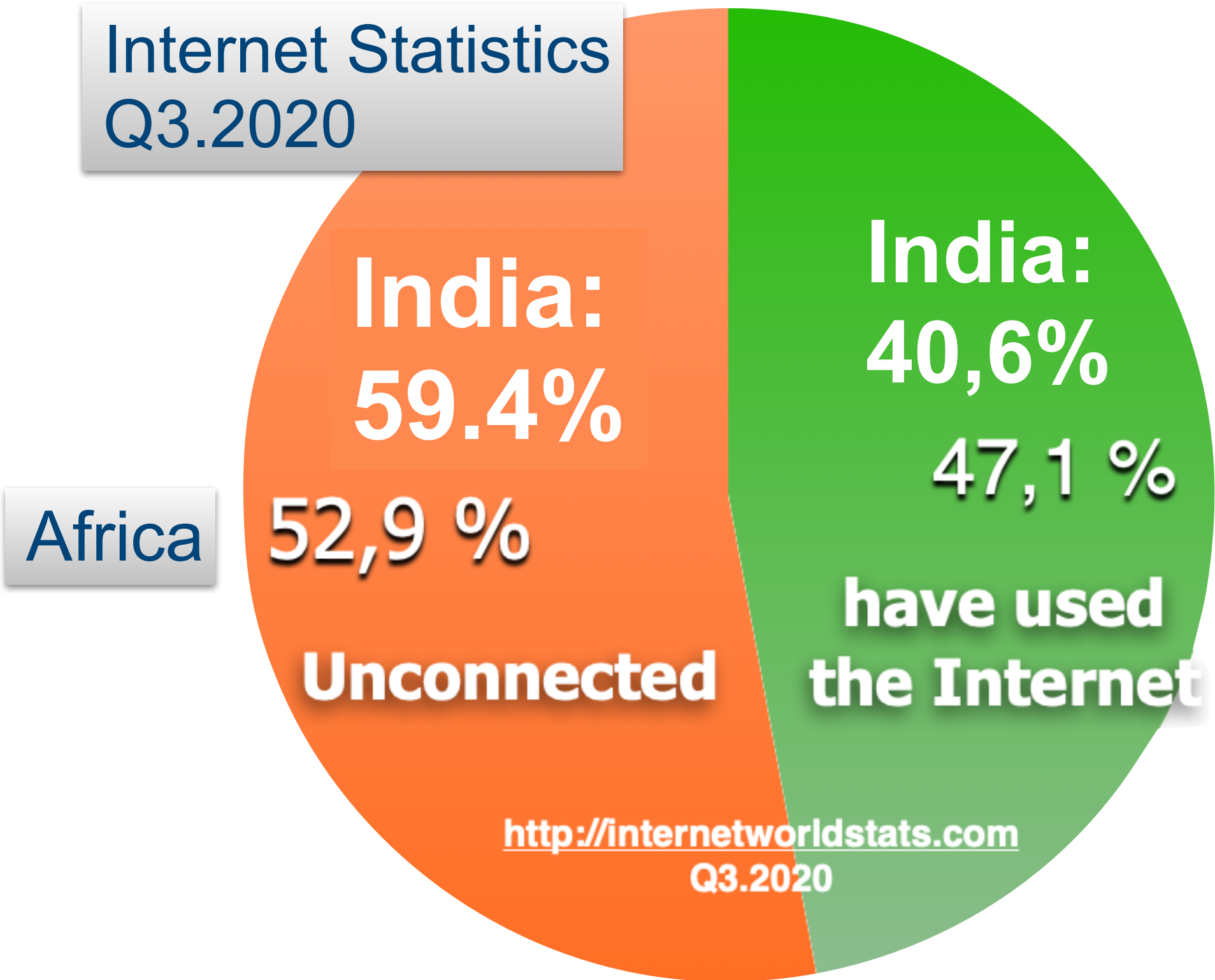
Recommendations for EAC from East Africa Health conference (2018)

- 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)]



“Connect the >50% unconnected”



Reality on the ground

“There is no broadband in rural areas”
(in South of Sahara Africa - SSA)

Broadband = Mobile Broadband

TZ: 640 USD for 4 Mbit/s
GH: 600 USD for 5 Mbit/s
KE: 600 USD for 10 Mbit/s
“every single month”

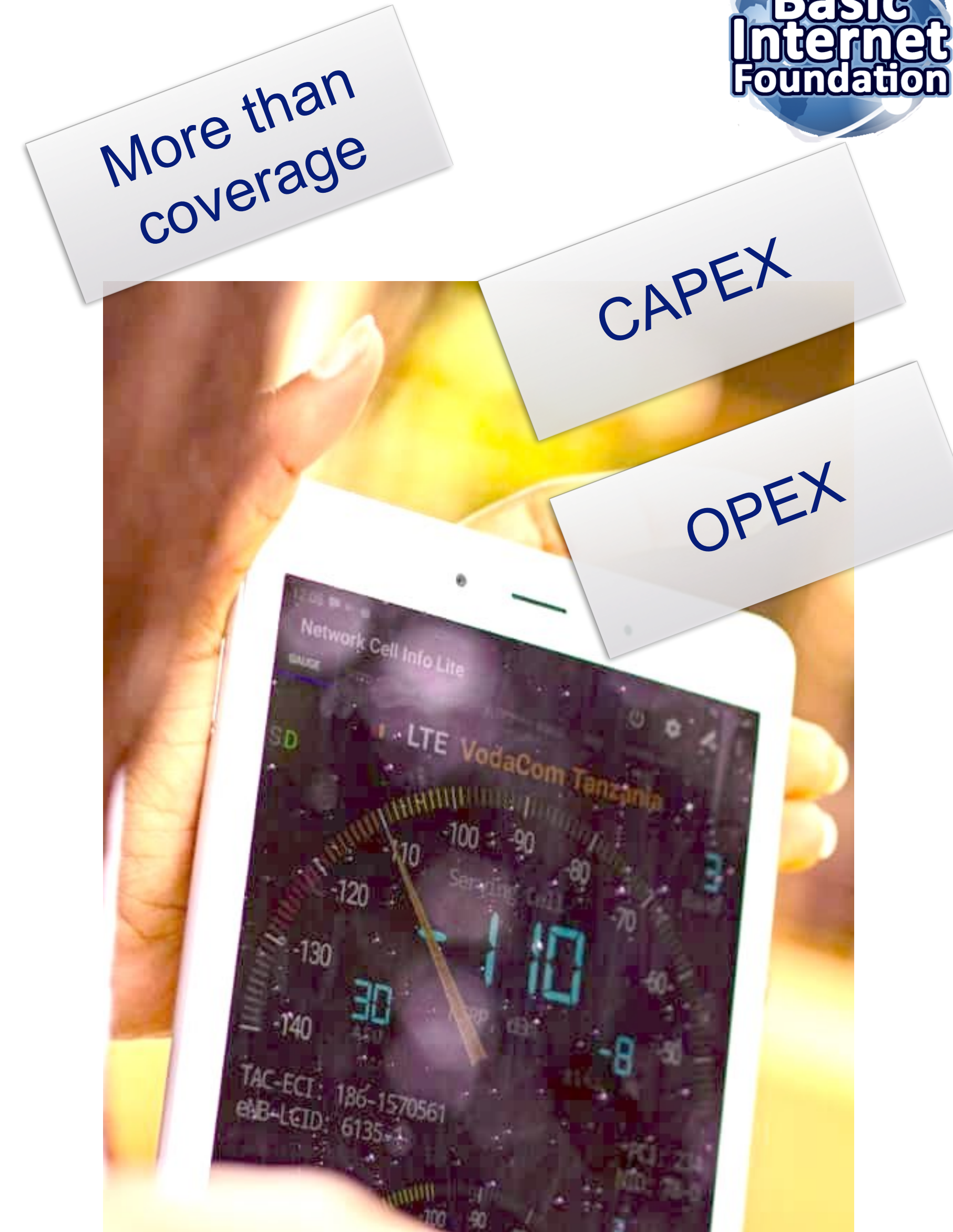
The Buz model of operators / device
manufacturer / mobile industry ...

ASIA INTERNET USE, POPULATION STATISTICS DATA AND FACEBOOK DATA - JUNE 30, 2020						
ASIA	Population (2020 Est.)	Internet Users, (Year 2000)	Internet Users 31-MAY-2020	Penetration % Population	Users % Asia	Facebook 31-MAR- 2020
India	1,380,004,385	5,000,000	560,000,000	40.6 %	24.3 %	251,000,000

Reality of the Digital Divide

- Internet through the mobile network
 - Mobile network is business-driven

- “Boys have the toys”
 - digital divide in both devices
 - ▶ Example Smartphone ownership:
33% male, 16% female (Bangladesh)
 - mobile broadband access



Leading question

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

United Nations High Level Panel on Digital Cooperation

→ Jun2019 report: Recommendations

- Inclusiveness
- Digital Public Goods (DPGs)



Nikolai
Astrup

Melinda
Gates

Jack
Ma

Bogolo
Kenewendo

Nanjira
Sambuli

Akaliza
Keza Ntwari

Vint Cerf

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**...

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)

Addressing the Priorities of Norway



Norwegian Ministry
of Foreign Affairs

Summary

Meld. St. 11 (2019–2020) Report to the Storting (white paper)

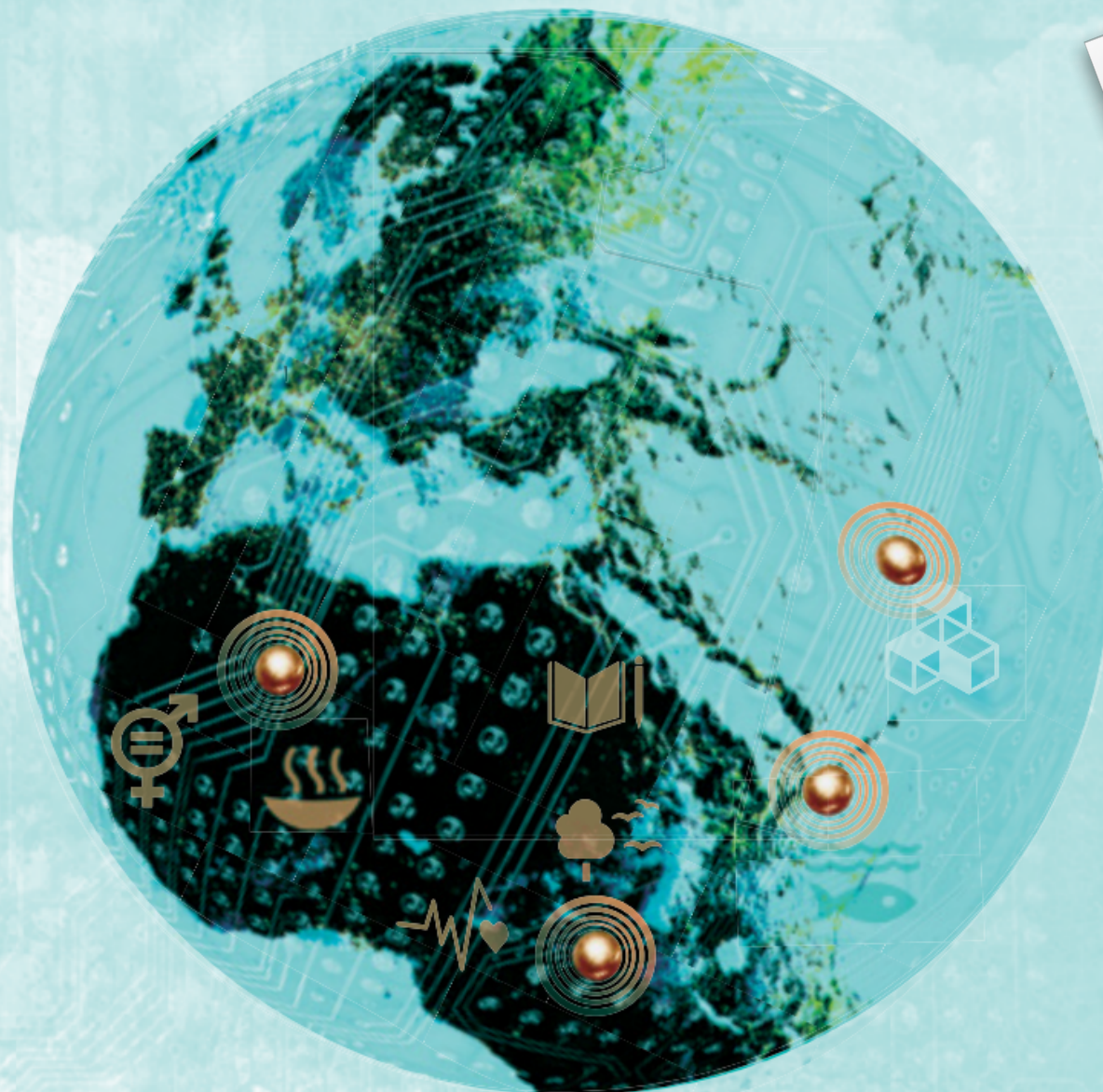
Digital transformation and development policy

Access

Skills

Regulations

Inclusion



16

Meld. St. 11

Digital transformasjon og utviklingspolitikken

2019–2020

Boks 2.2 Digital inkludering og tilgang til informasjon for alle

Norge støtter stiftelsen Basic Internet Foundation gjennom finansieringsmekanismen Visjon 2030. Stiftelsen, som er et samarbeid mellom Kjeller Innovasjon og Universitetet i Oslo, bruker digitalisering til å gi tilgang til informasjon som et grunnlag for inkludering og styrking av individers og lokalsamfunns rettigheter.

Basic Internet Foundation jobber med å gi fri tilgang til informasjons-internett eller «Internet Lite», og har som overordnet mål å sikre digital inkludering. Stiftelsen har utviklet en løsning der digitalt innhold som krever mye båndbredde (for eksempel videoinnhold) siles ut, mens «lettere» innhold (tekst og bilder) gjøres åpent tilgjengelig. Stiftelsen anslår at én persons betalte bruk av innhold som krever større båndbredde, kan finansiere fri tilgang til «lettere» informasjonsinnhold for flere titalls brukere.

Stiftelsen har utviklet billige løsninger for wi-fi-hotspots som installeres i landsbyer som ikke har internettdækning. Helseinformasjon fra lokale helsemyndigheter lastes opp på en lokal server tilknyttet en wi-fi-hotspot, og dette innholdet kan lastes ned gratis av landsbybefolkningen. I tillegg skal stiftelsen tilby svært rimelig «Internet Lite» til landsbybefolkningen i samar-

beid med lokale mobiloperatører. Dette testes nå ut i Tanzania og DR Kongo.



Figur 2.4 Leder av lokalsamfunnet, Mbaash, foran lokal helseklinikk som har fått internett tilgang via Basic Internet Foundation.

Foto: Josef Noll, Basic Internet Foundation.

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

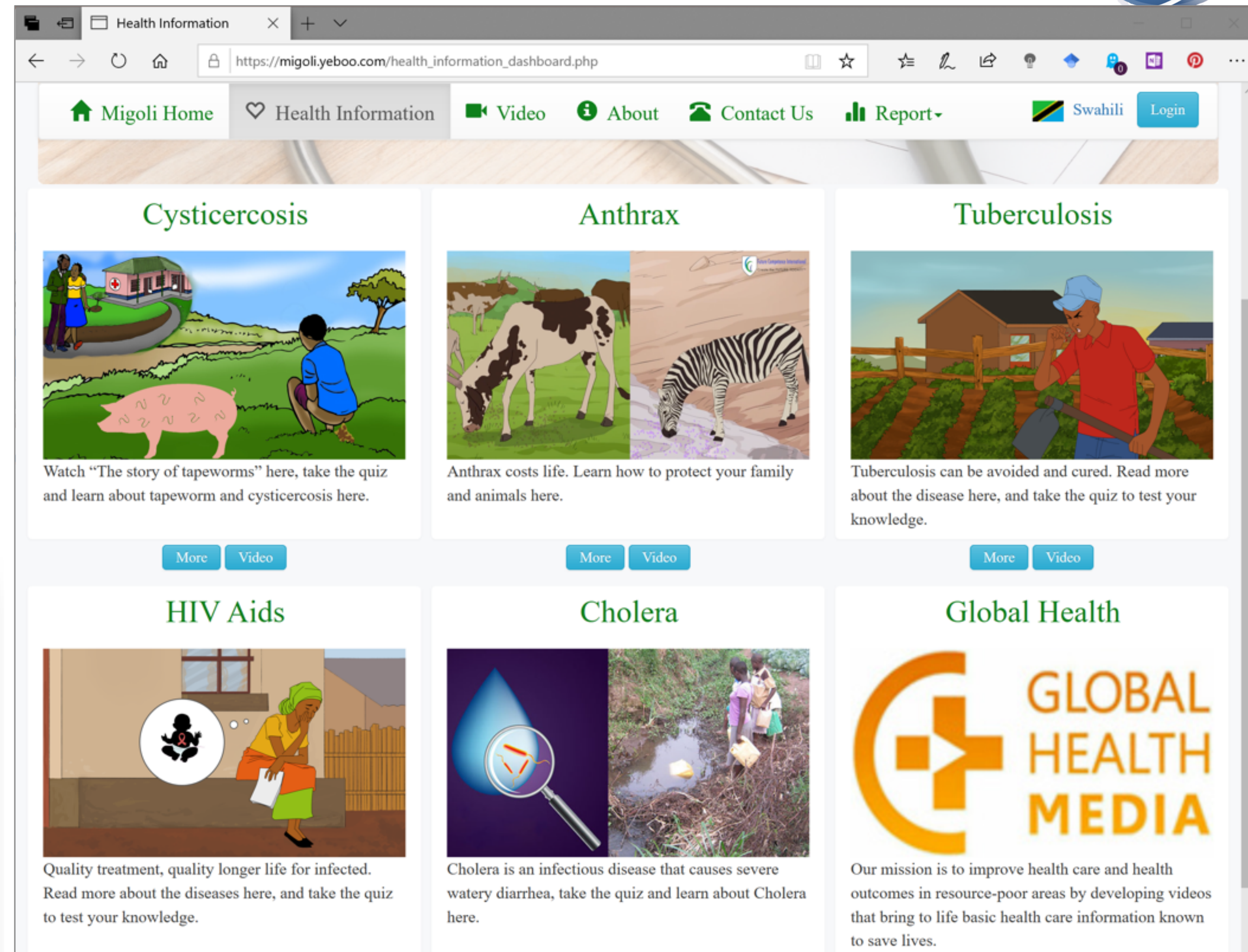
<http://Yeboo.com>



**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

Home Mwanzo Afya Kuhusu Wasiliana nasi Repoti Videos English Login

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



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

[Source: Christine Holst, UiO (Nov2019)]

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>



We need to solve 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)



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 Innovation Week (AIW2019)



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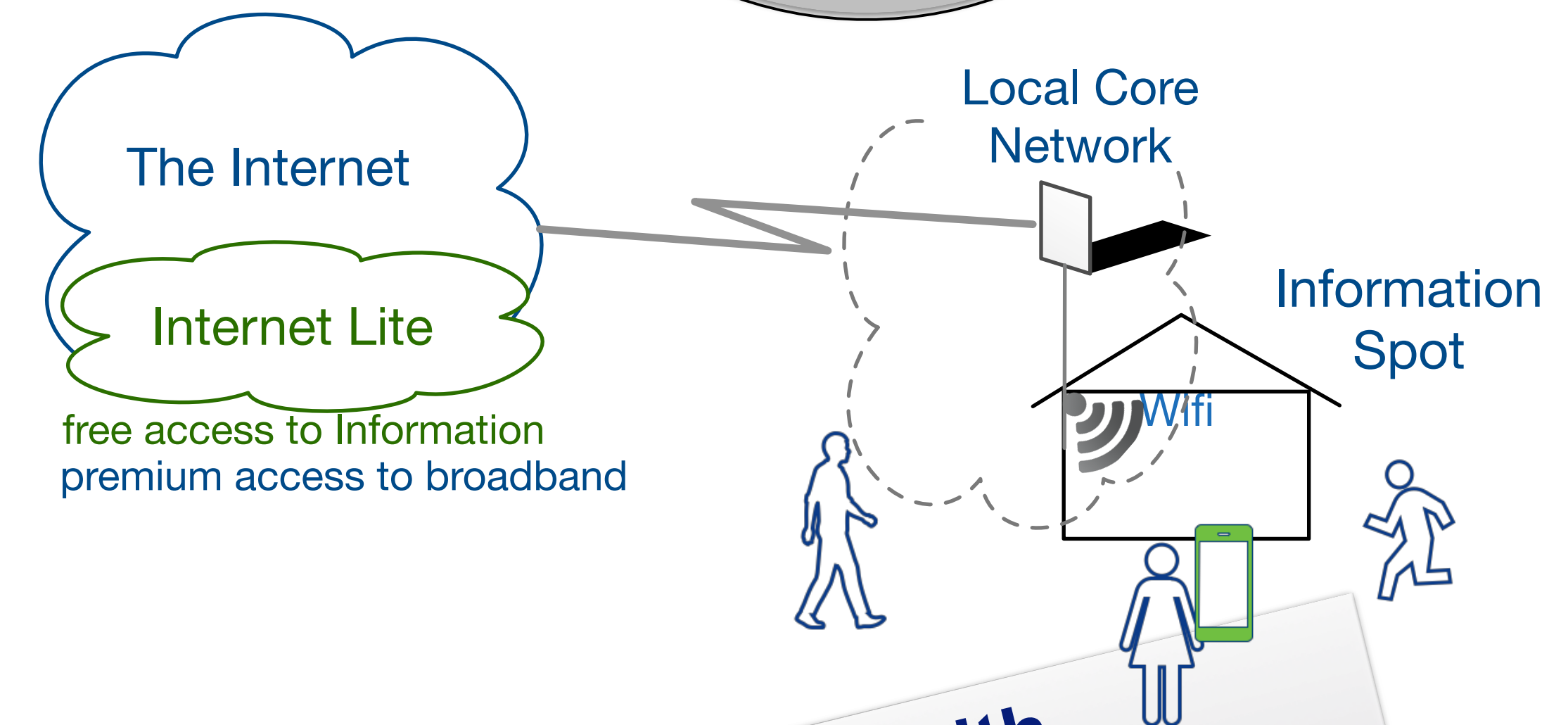
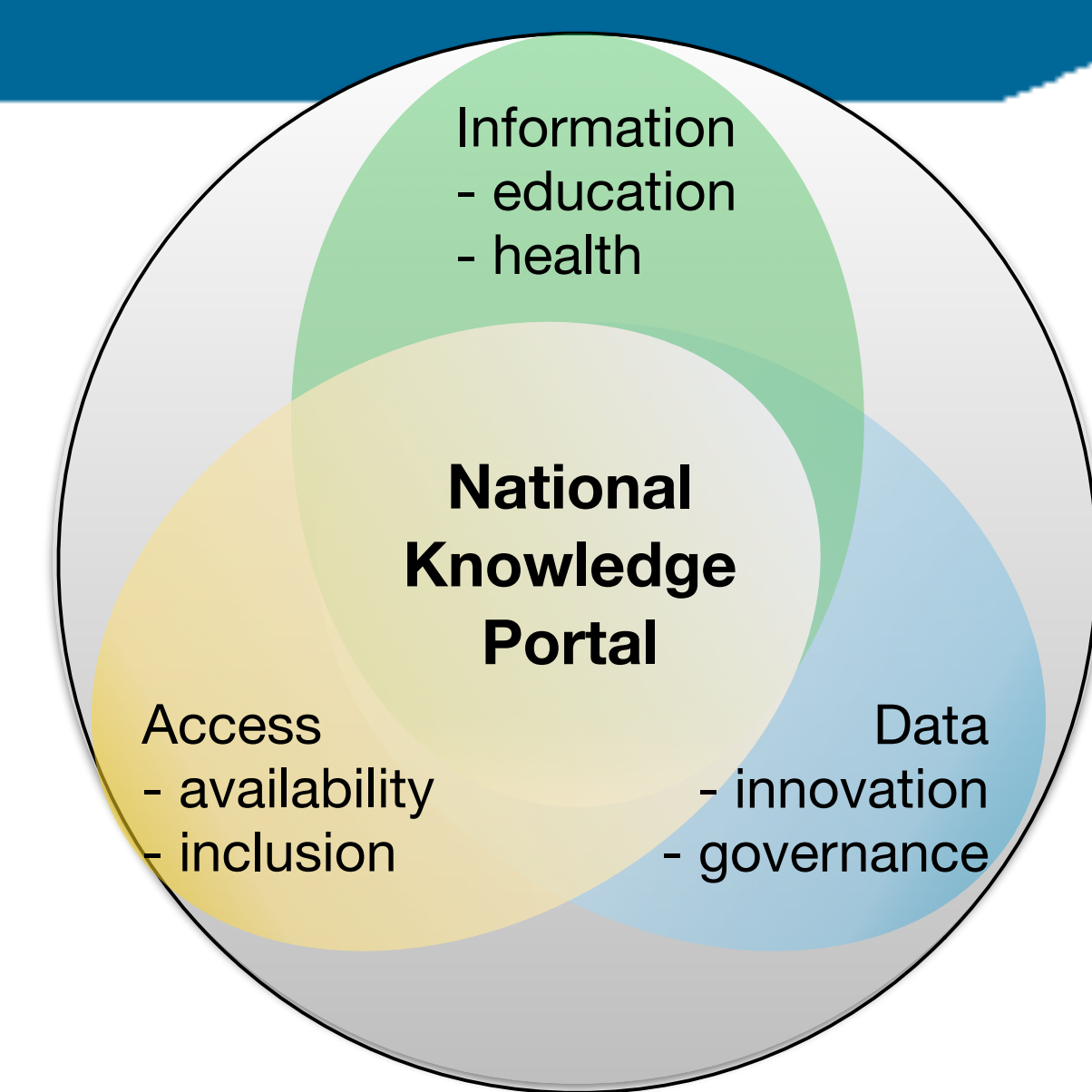
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Conclusion

“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



Prof. Andrea Winkler
UiO - Norway



Prof. Helena Ngowi
SUA - Tanzania



Mr. Erwan Le Quentrec
Orange - France



Dr. Maurice Isabwe
FCI - Rwanda



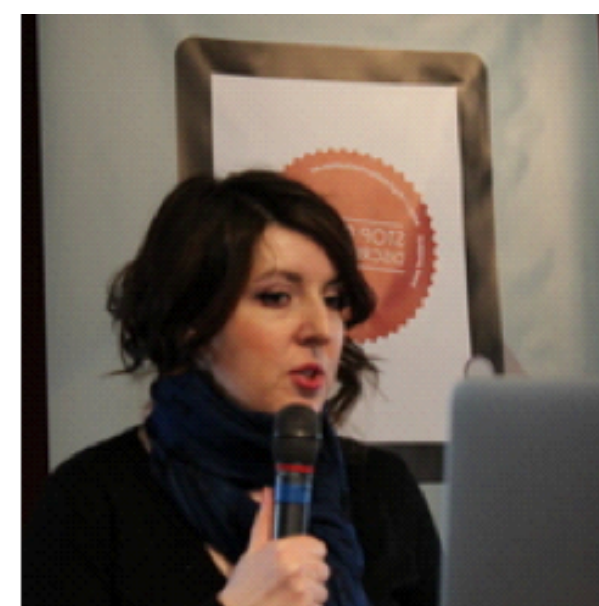
Dr. Peter Cardellichio
Global Health Media - USA



Mrs. Flora Kajuna
SUA - Tanzania



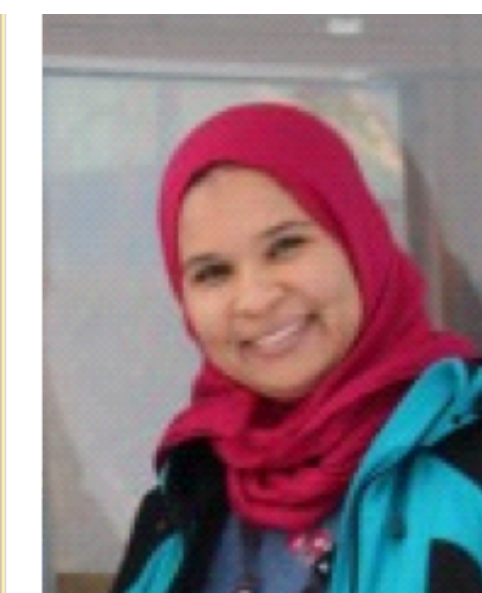
Dr. Felix Sukums,
Muhas - Tanzania



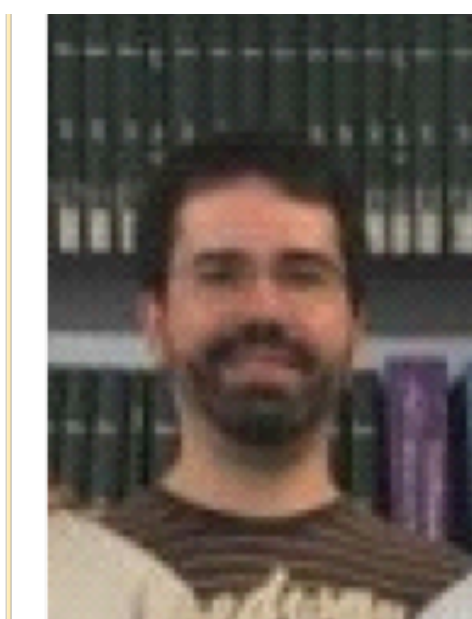
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