UNIVERSITY OF OSLO

Digital Cooperation and Diplomacy, 25Oct2022
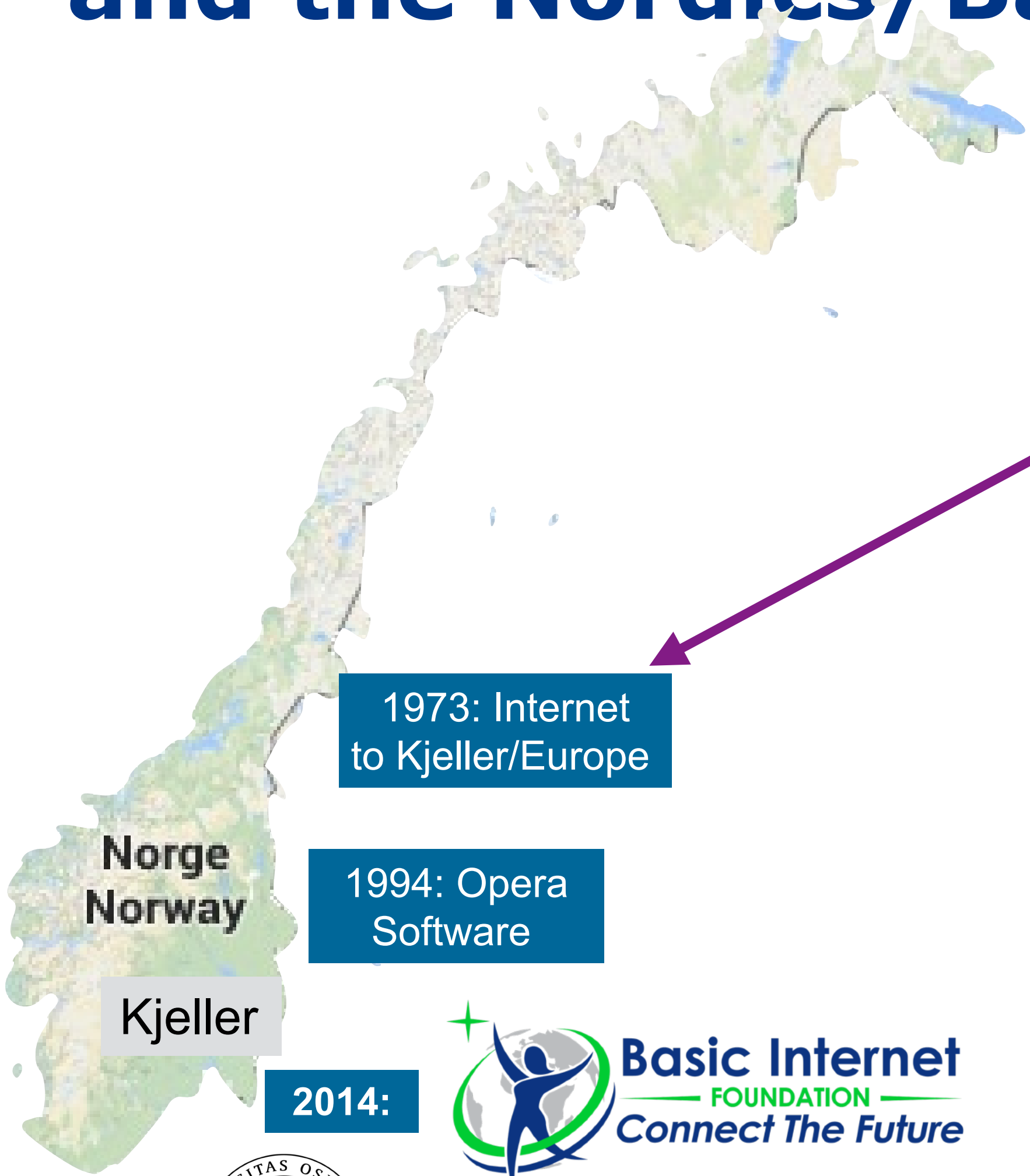
Africa and the Internet

Josef Noll
Professor
Department of Technology Systems

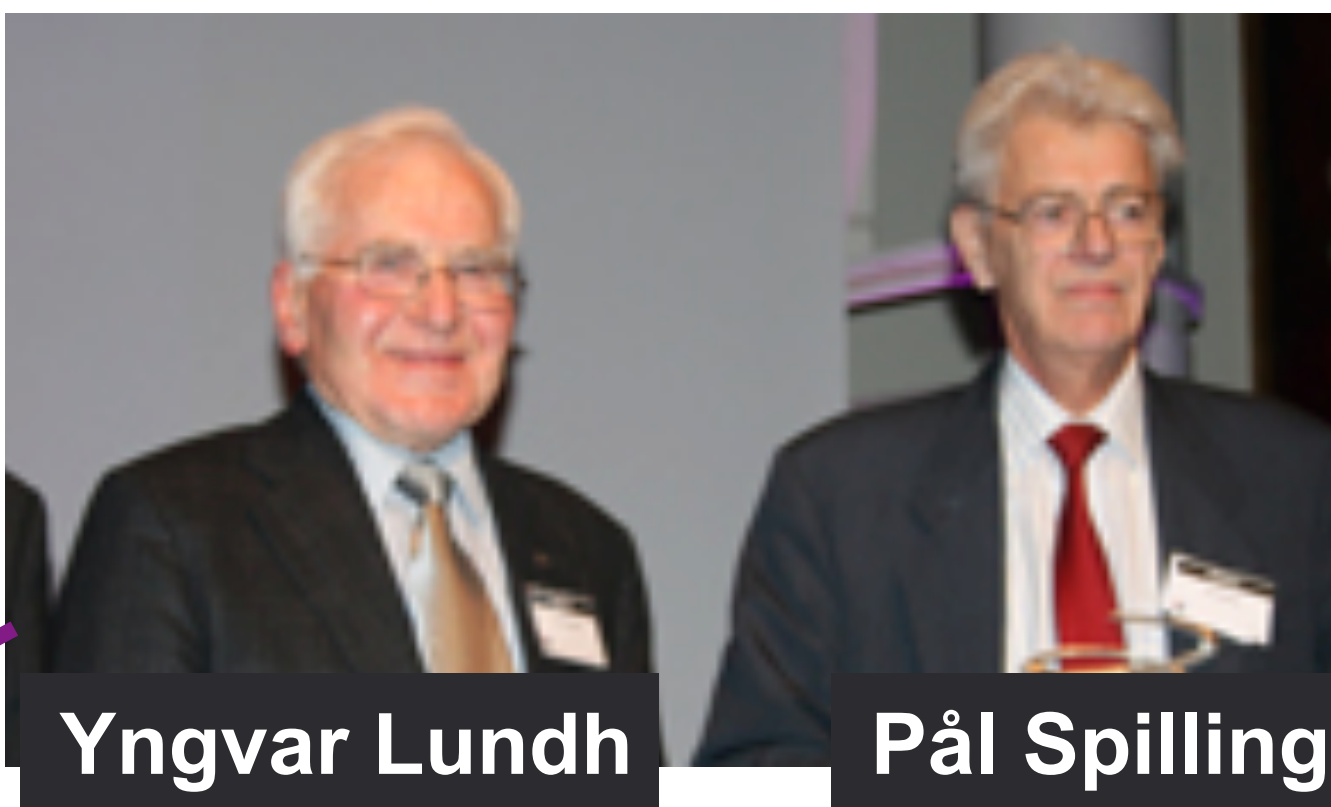UNIVERSITY OF OSLO

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

1973 Kjeller

Yngvar Lundh

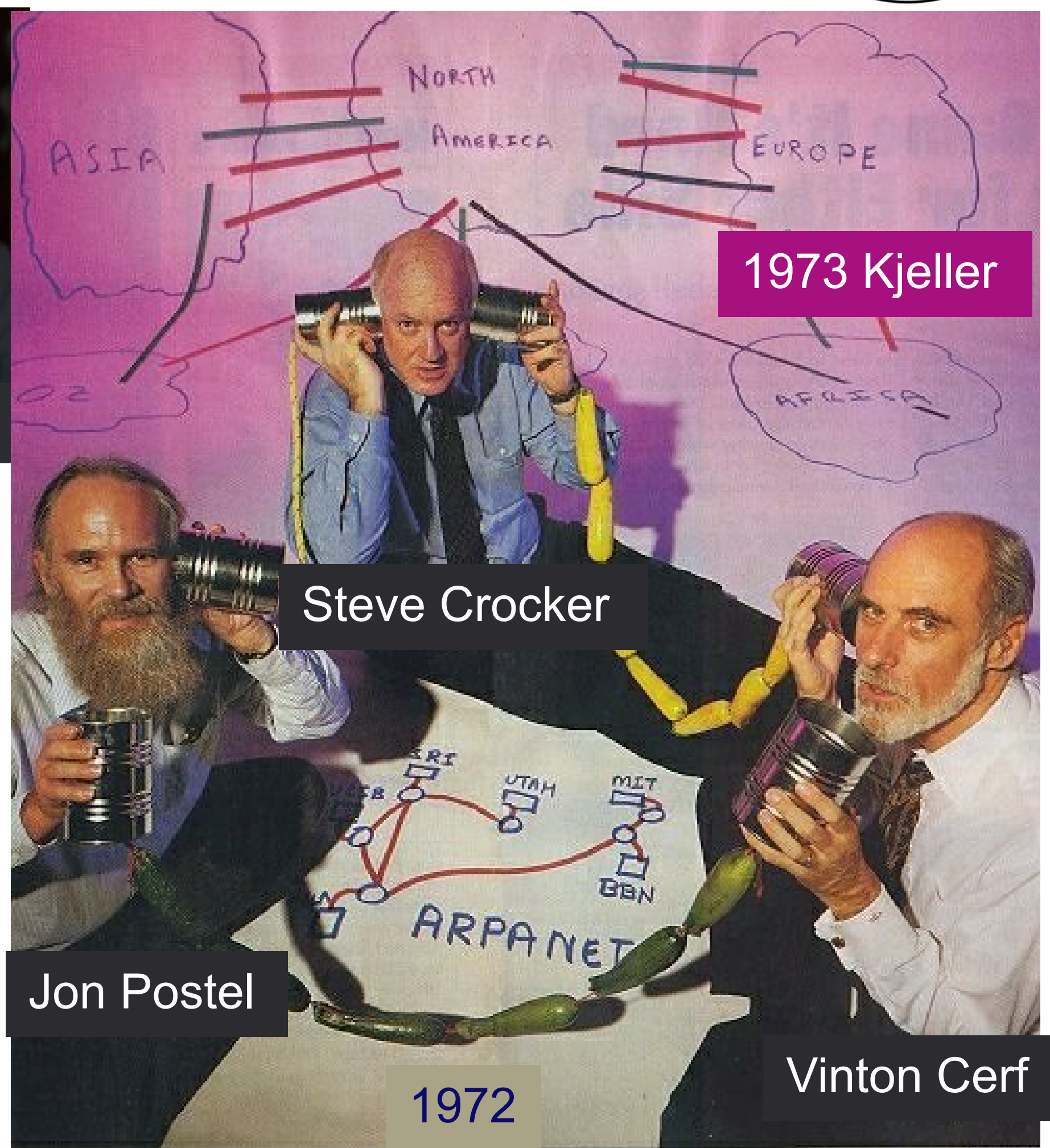Pål Spilling

Steve Crocker

Jon Postel

Vinton Cerf

1972

1973: Internet to Kjeller/Europe

Norge Norway

1994: Opera Software

Kjeller

2014:

Basic Internet
FOUNDATION
Connect The Future

KJELLER
INNOVASJON

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

How can we "Connect The Future"?

Josef Noll @josefnoll · Jun 2

Amazing opening by @ITU @ITUSecGen Houlin Zhao, setting the scene for connecting every single human by 2030, and @meilinfung, addressing the history of the Internet and #NRENs to connect schools. We're in @CateKimambo @RosalynnMworia @UcsafT @AheriNet @cisskisumu @WSISprocess
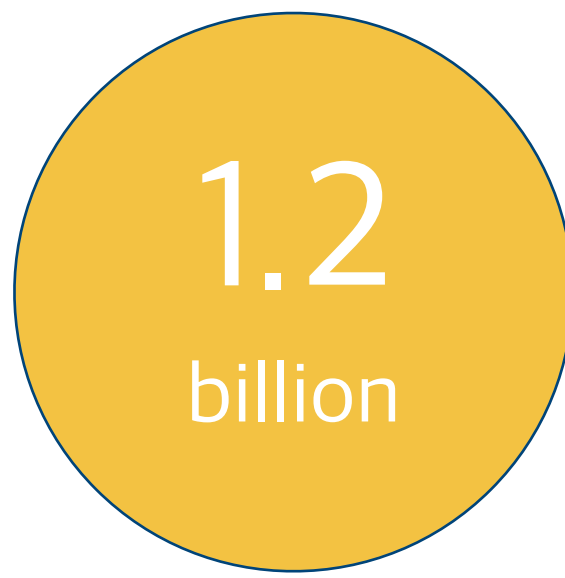

Empower my dreams

Energy & Digital, enablers for the SDGs
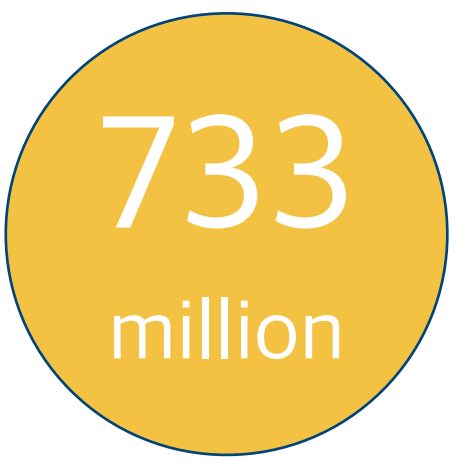
7 AFFORDABLE AND CLEAN ENERGY

People without electricity

SDG 7.1 calls for universal access to …. energy by 2030

1.2 billion — 2010

733 million — 2020
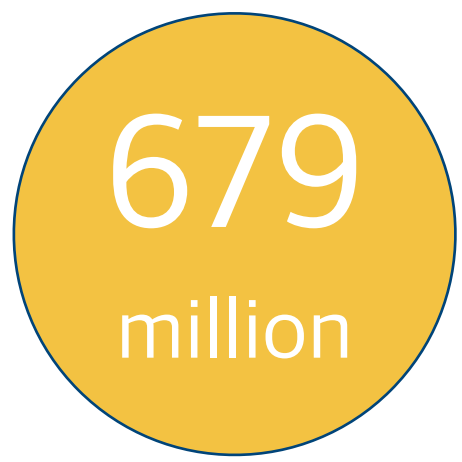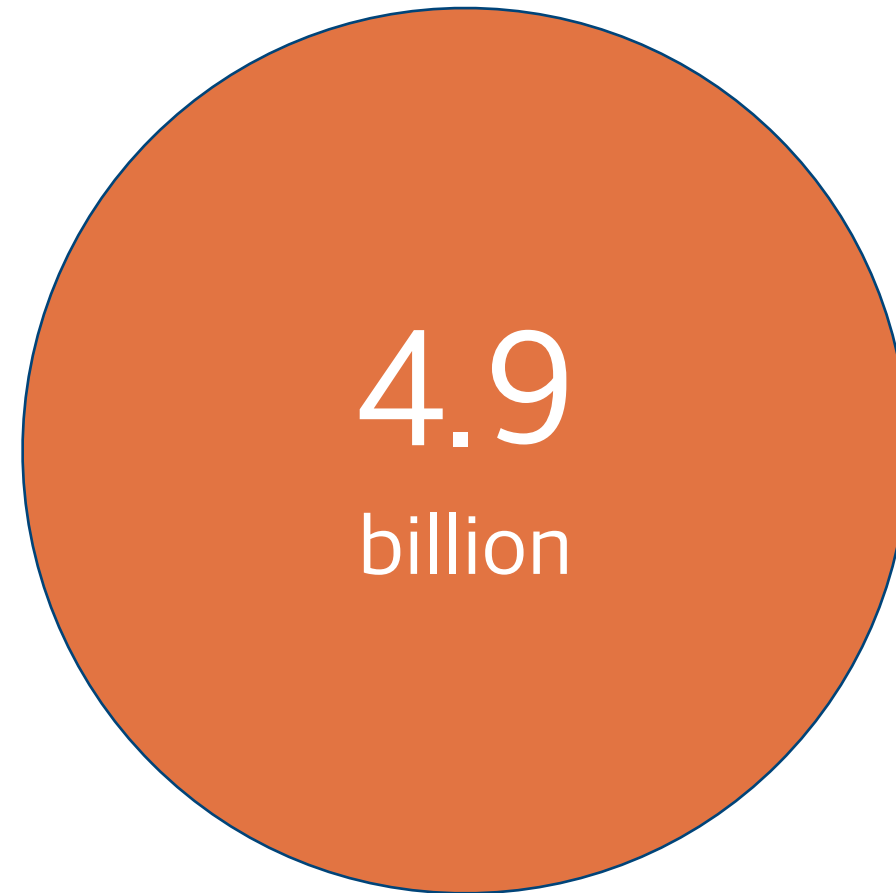
679 million — 2030 (trend)

[WorldBank 2021]

https://www.worldbank.org/en/news/press-release/2021/06/07/report-universal-access-to-sustainable-energy-will-remain-elusive-without-addressing-inequalities

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

People not using Internet

SDG 9c calls for universal, affordable internet access by 2020

4.9 billion — 2010
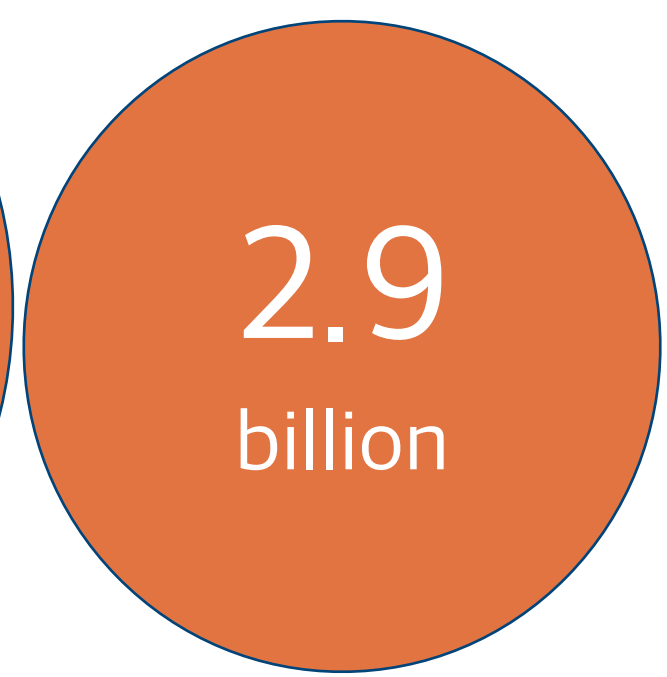
2.9 billion — *2021* — 96% in dev countries

0 billion — 2030 (hope)

WSIS Forum 2022

[ITU 2010, 2021]

https://www.itu.int/hub/2021/11/facts-and-figures-2021-2-9-billion-people-still-offline/

Today's Internet failed
to connect the unconnected

"Internet had the ability to dismantle the divide.
Internet failed miserably, the divide is bigger than ever."

Kate Gilmore, Human Rights, UNOG, 2017

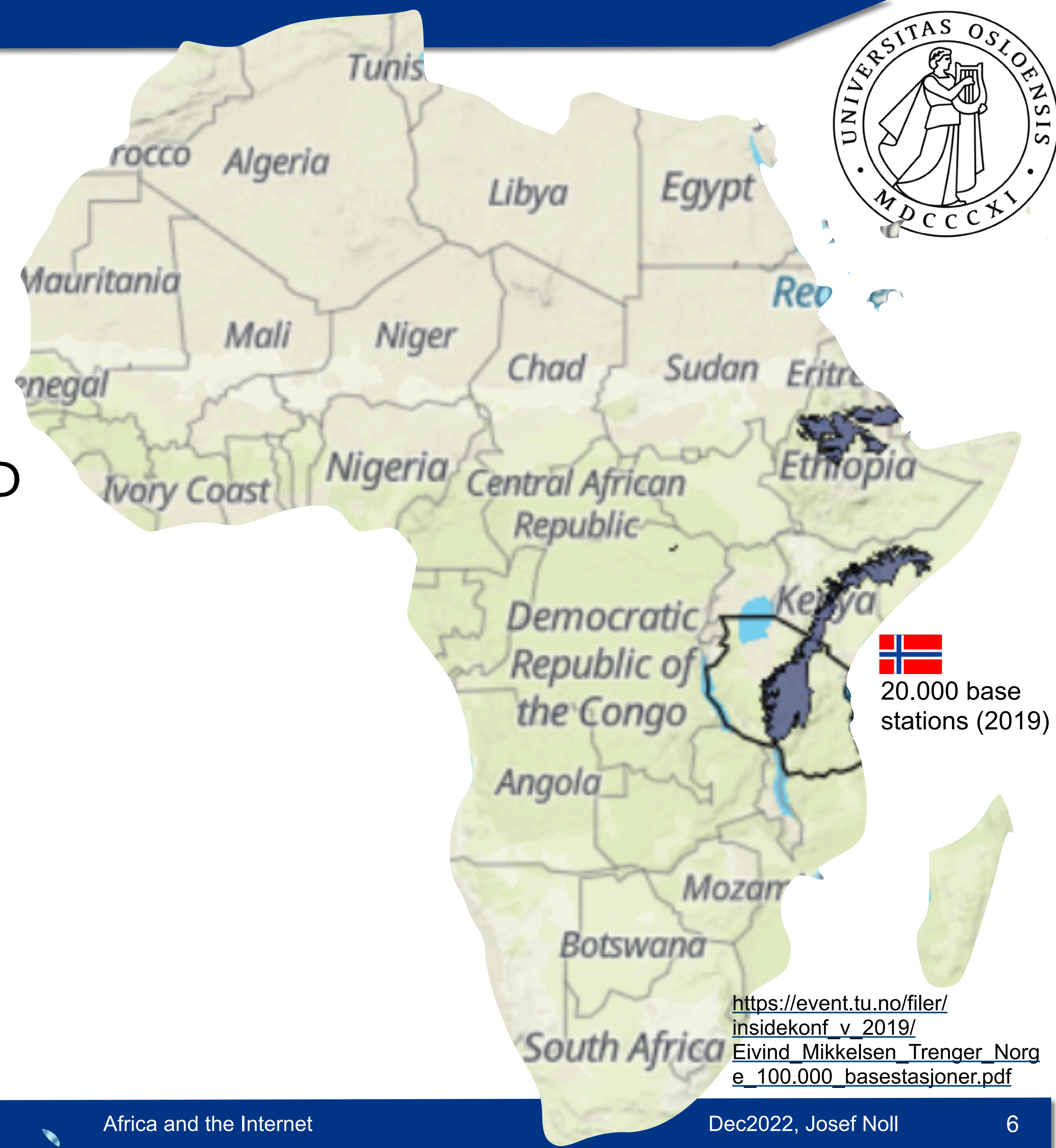# The Business Model
of access to the Internet does not fit for SSA

➡ Western World

- fixed access (home, work) - 45 USD

- mobile access - 20-30 USD

➡ Africa

- large distances
  - expensive access (500 USD for 5 Mbps)
  - negligible fixed broadband
- ability to pay

20.000 base stations (2019)

What if ...

We revisit access
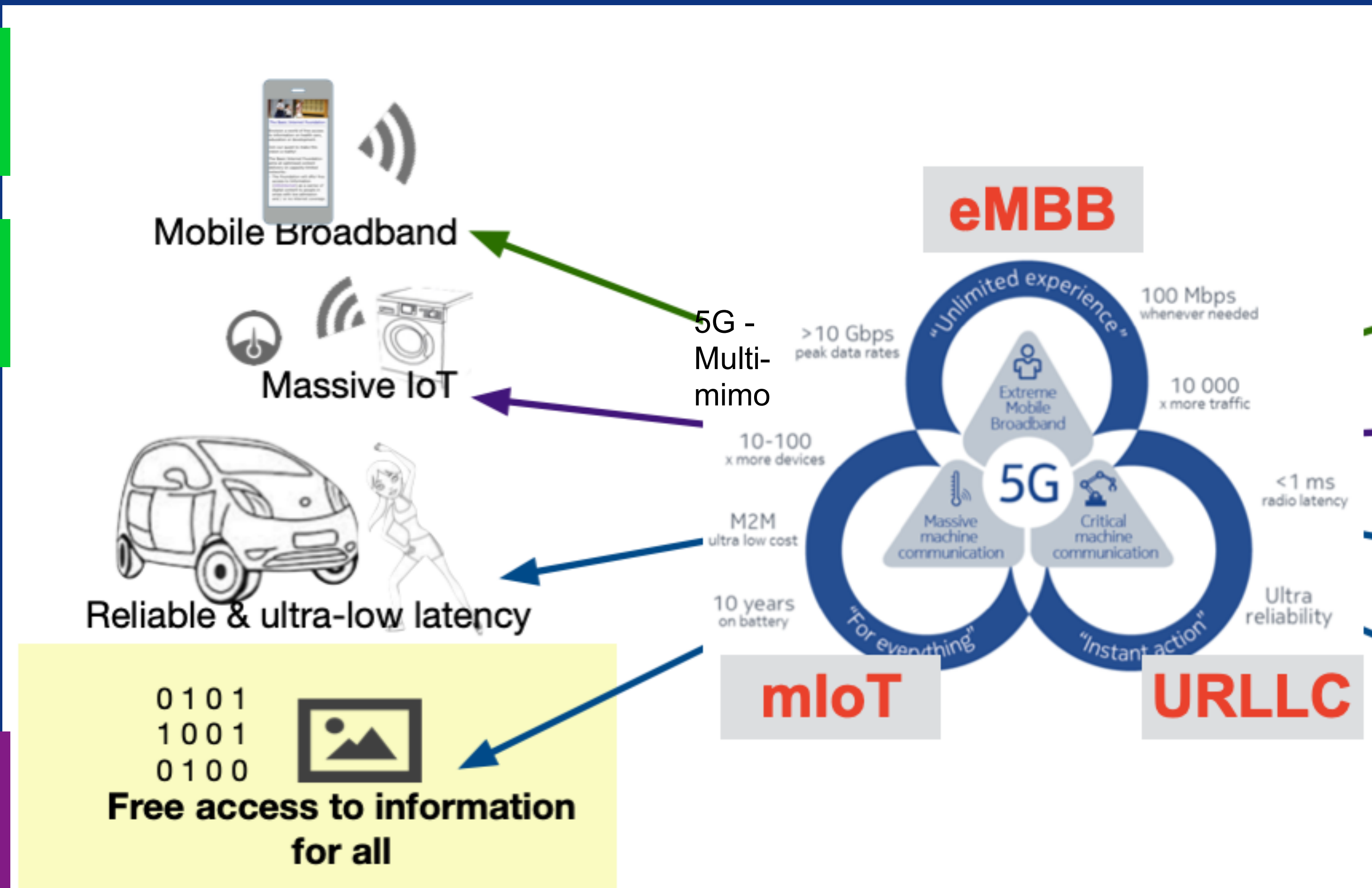
We decentralise the Internet

We use Universities to connect

Revisit Access

Road model: pedestrians & cyclists

**Digital pedestrians, digital cyclists vs digital cars (broadband)**

Internet Lite
as a Digital Public Good (DPG)?

Mobile Broadband

Massive IoT

Reliable & ultra-low latency

5G - Multi-mimo

0101
1001
0100
Free access to information for all

eMBB

>10 Gbps peak data rates

"Unlimited experience"

100 Mbps whenever needed

10 000 x more traffic

10-100 x more devices

Extreme Mobile Broadband

5G

Massive machine communication

Critical machine communication

<1 ms radio latency

M2M ultra low cost

"For everything"

"Instant action"

Ultra reliability
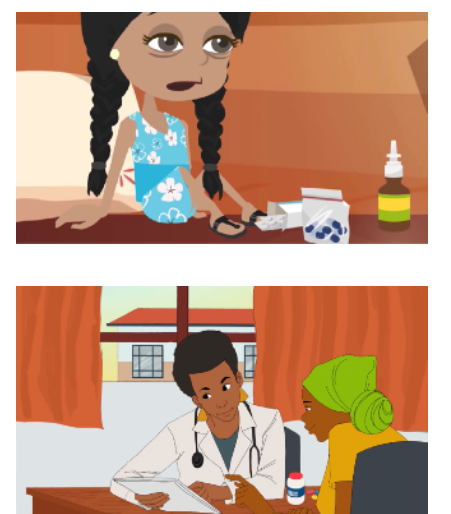
10 years on battery

mIoT

URLLC

The role of Universities
"more toys for boys - or societal impact?"

➡ Inclusive and empowered (digital) societies

➡ From NRENs to Schools and Communities

➡ Regional Competence Centres (RCCs) for
- the Digital Transformation
- Connect Schools & Communities
- practical experiences

4G/5G Multi-MIMO

microwave
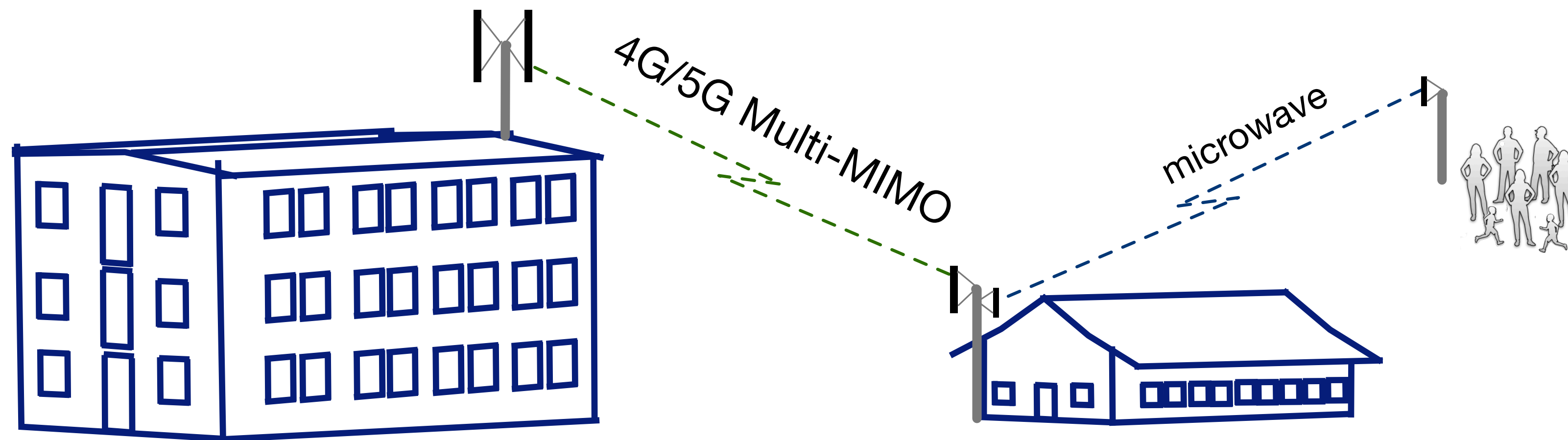
InfoSpots for **CL&L**
Community
Learning &
Living
Labs

Africa Connect3

UbuntuNet Alliance

WACREN

ASREN
Arab States Research and Education Network

GÉANT

Conclusion
Partnership for Connectivity

➡ Universities

- Real-world knowledge
- Decentralised, empower the communities
- Knowledge4Africa, 5GforPeople

➡ Community Learning & Living Labs

- from NRENs to Schools to CL&L

➡ Commercial actors

- Mobile operators: Research with 5G as backbone
- ISPs, satellite

➡ Government, ITU, UNICEF, UNESCO, …

- Framework conditions (spectrum, Internet Lite)

Mobile Broadband
Massive IoT
Reliable & ultra-low latency
Free access to information for all

eMBB
mIoT
URLLC

4G/5G Multi-MIMO
microwave
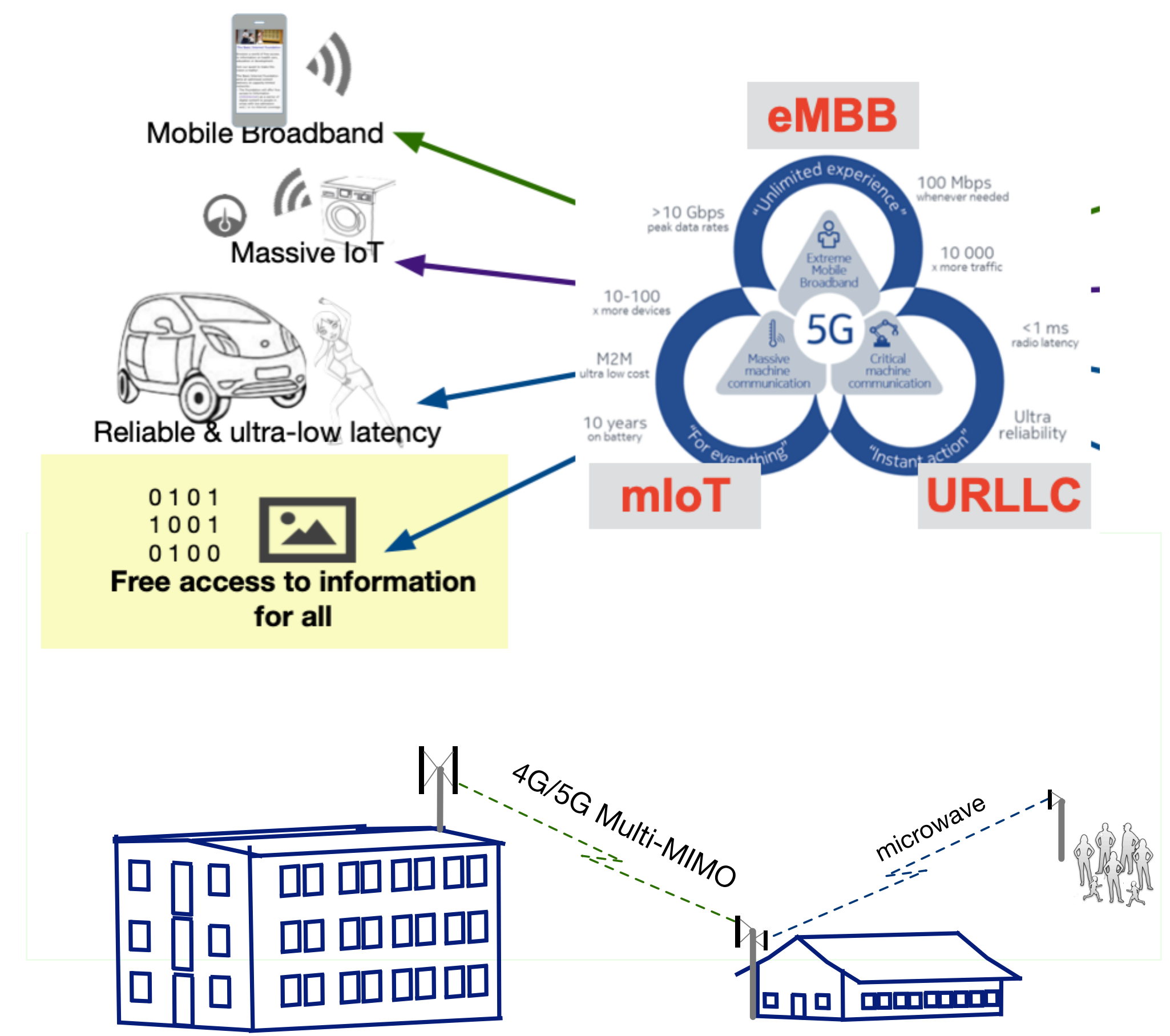
Join us & "Connect The Future"

2 000 schools
1 820 000 students
Q4.2024

105 schools
77 632 students
Q4.2022

55 schools
37 632 students
Q4.2021

10 schools
10 131 students
Q1.2021

3 000 USD/installation

2500 USD/installation
4 $/student

1800 USD/installation

1100 USD/installation
0.6 $/student

BasicInternet.org