

UNIVERSITY OF OSLO

Gubbegruppa Høybråten,
28Feb2023

Bærekraft of Samfunnet

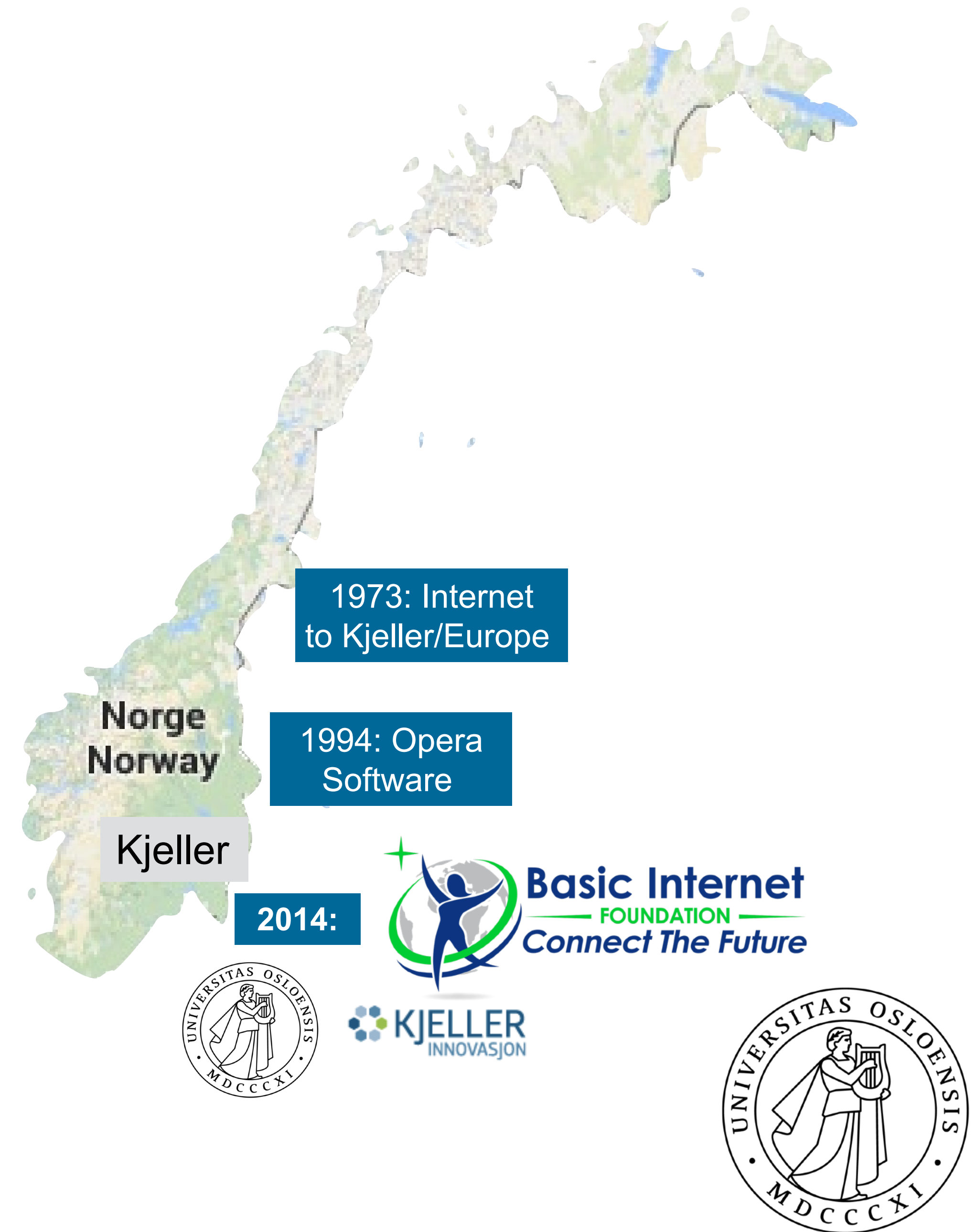
Josef Noll

Professor, Department of Technology Systems

Lead Digital Global Health, Centre for Global Health

Secretary General, Basic Internet Foundation

UNIVERSITY
OF OSLO



Fra Radio til Samfunnssikkerhet - inkludering og deltagelse

→ "The German coming to the Nordics"

- **Radio**, Communications, **Remote Sensing**
- Siemens, European Space Agency (ESA)
- Telenor: 3G development (Kjeller)

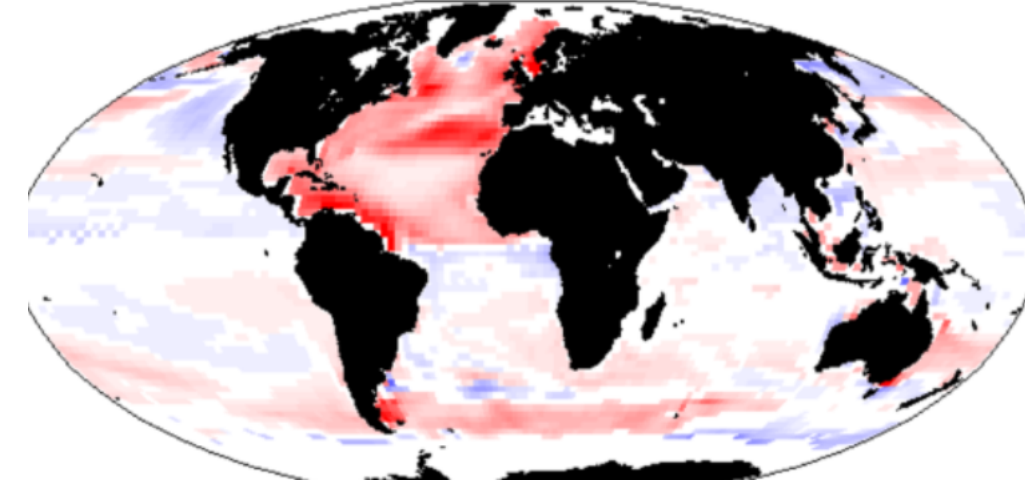
→ The Nordics & Baltics

- Internet to Europe (1973), Pioneers: Vint, Paal, Yngvar
- .php, OpenSource, Linux, Skype, Spotify
- OperaSoftware, FAST Search
- Nokia, Ericsson, Telenor, Telia

→ "Internet to Africa" (2012)

- Basic Internet Foundation (2014)

1992: "Remote Sensing & Climate Change"



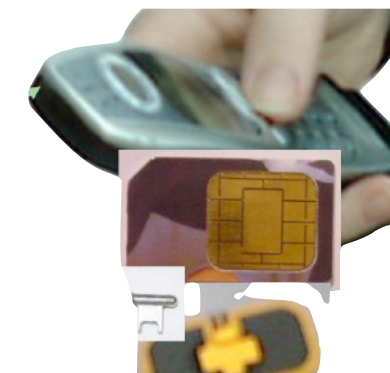
1999: 3G System - Mobile Security

2004: Mobile Payment & Authentication



2006: 4G & IoT - IoT Security

2015: IMSI catcher
- mobile espionage
- **societal security**



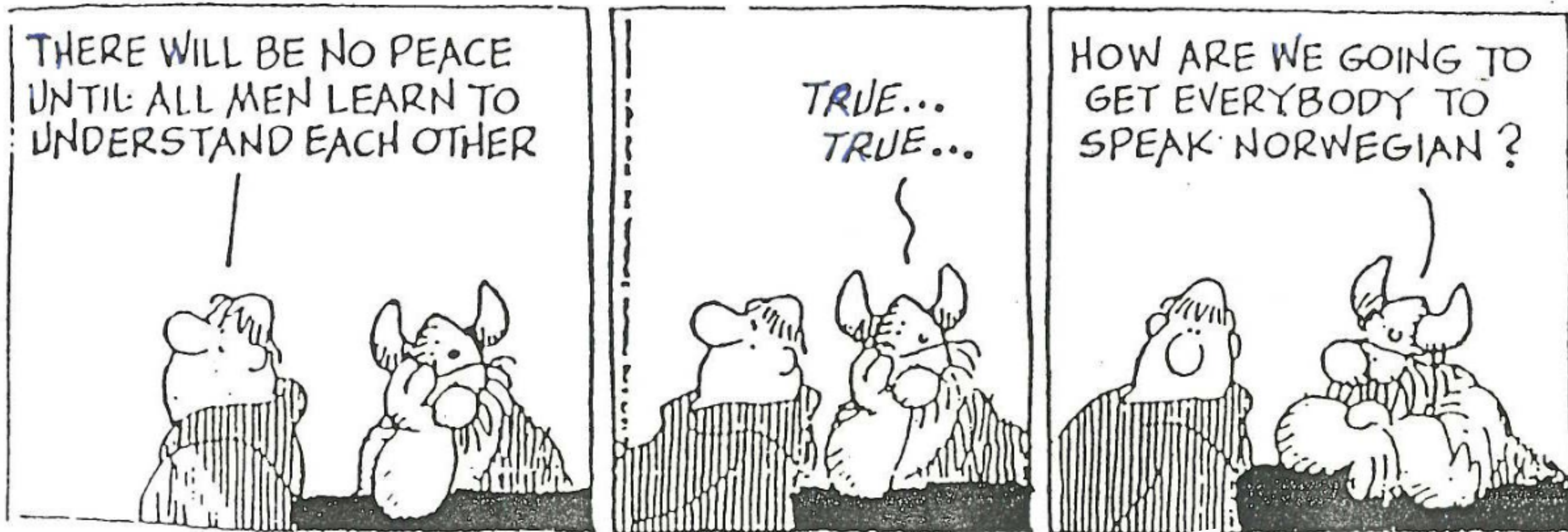
2015: Security in IoT for Smart Grids (IoTSec.no)



2019: **Digital Divide** & Societal Security

2022: IoT cybersecurity – Graceful degradation and security by design
<https://www.devicechronicle.com/iot-cybersecurity/>





**Samfunnssikkerhet: deltagelse av
enhver person i det digitale samfunnet**



Digital Transformasjon

Samfunnssikkerhet

Tillit

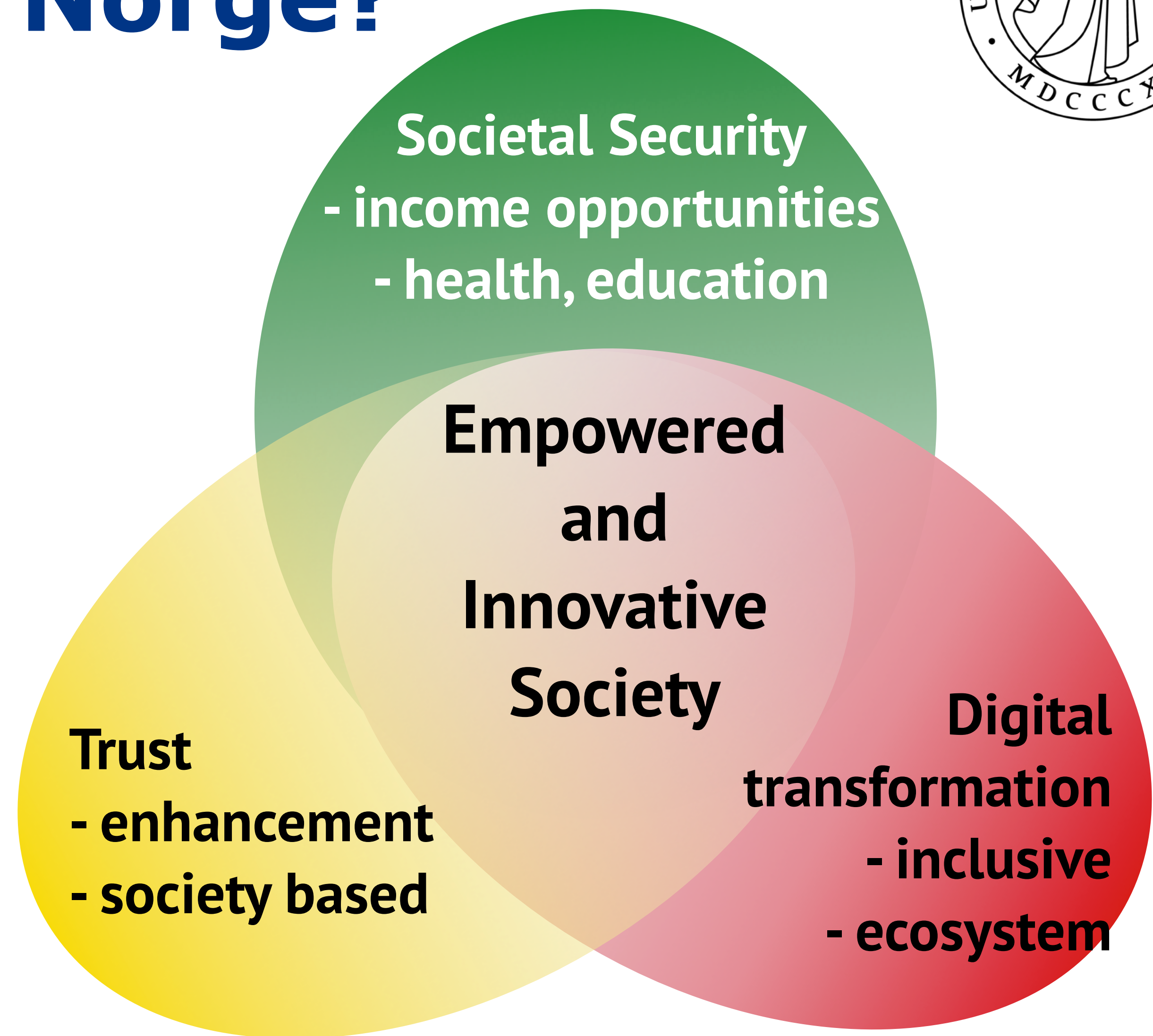
Bærekraftsmålene i Afrika (afrobarometer.org)



<https://blogs.worldbank.org/africacan/how-do-africans-priorities-align-with-the-sdgs-and-government-performance-new-results-from>

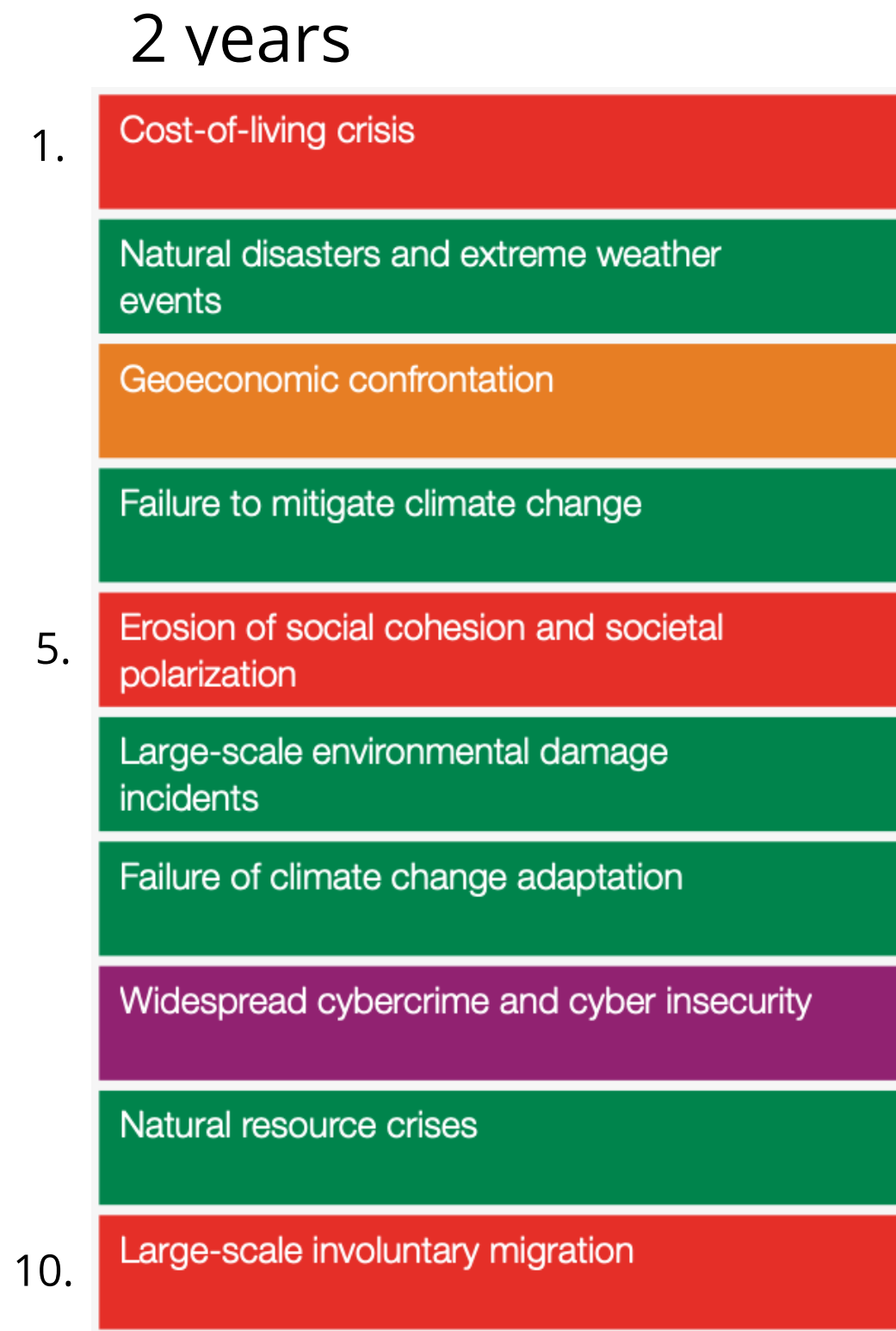
Hvordan påvirker det Norge?

- Global utfordringer
 - Klimakrise
 - Konflikter i Ukraine, Etiopia, Syria,...
 - Materialiser (Litium, Kobalt)
 - Digital skille
- Bærekraftig og inkluderende framtid - nøkkelen for SDGs



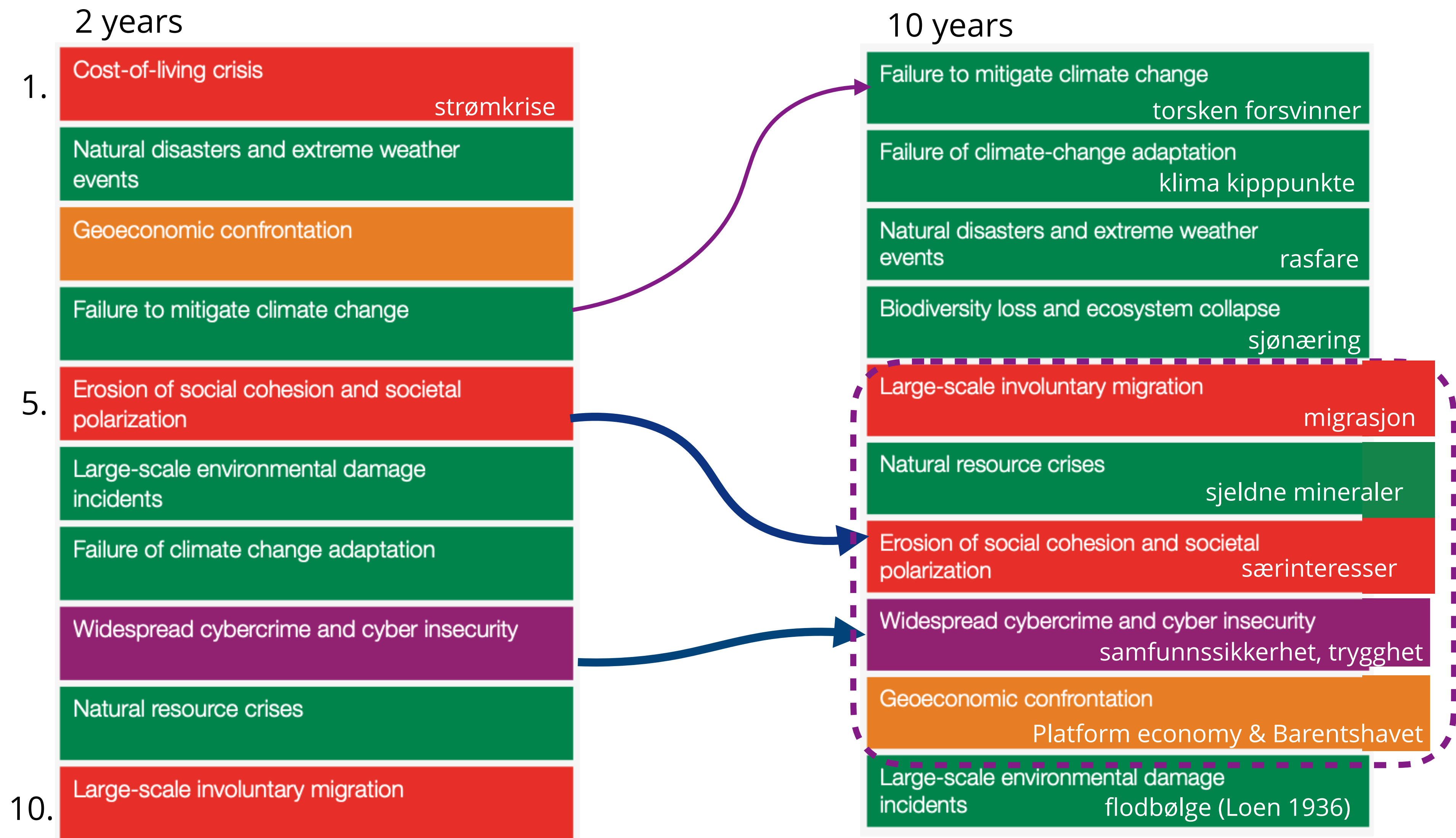
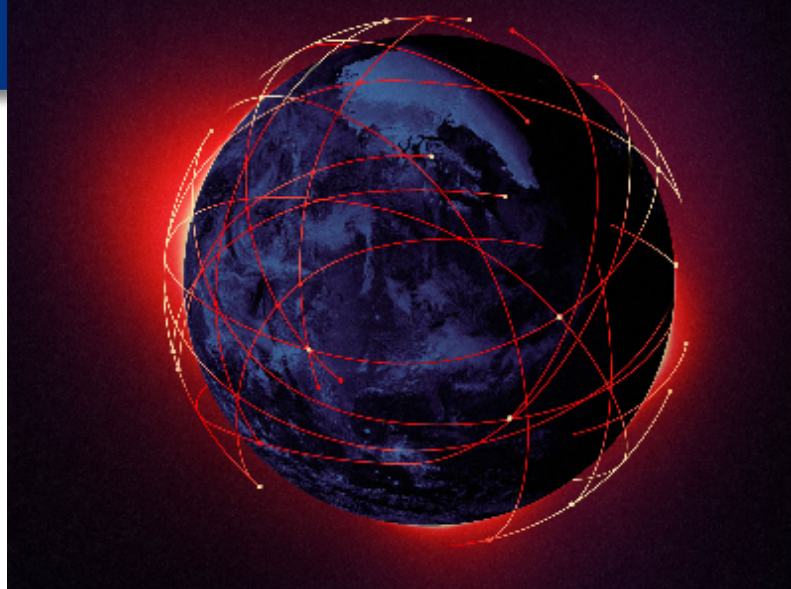
Morgendagens katastrofe

dagens kriser, og det vi forventer om 10 år



Global risks ranked by severity over the short and long term

Globale risikoer og samfunnssikkerhet



Global risks ranked by severity over the short and long term

Digital Transformasjon

Large-scale involuntary migration	migrasjon
Natural resource crises	sjeldne mineraler
Erosion of social cohesion and societal polarization	særinteresser
Widespread cybercrime and cyber insecurity	samfunnssikkerhet, trygghet
Geoeconomic confrontation	Platform economy & Barentshavet

Tillit

Samfunnssikkerhet

Digital Transformation

→ Economic perspective

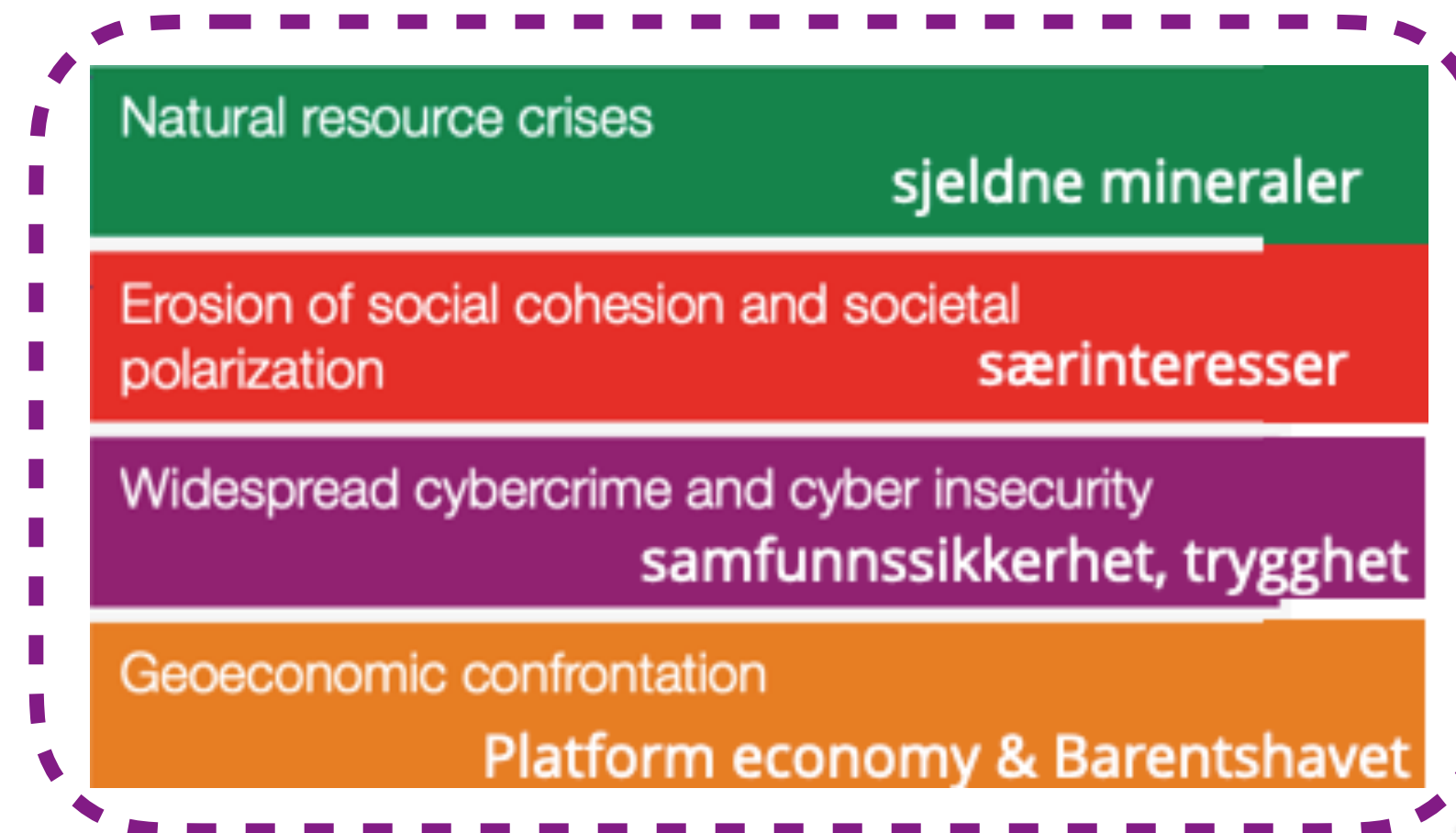
- electrical- and digital-transition
- platform economy (AMAMA) vs people
- economical perspective of SMEs

→ Digitisation & Apps

- TikTok and SocialMedia
- Hate Speech
- Deep Fake
- Artificial Intelligence

→ Ransomware

- industrial systems (Mærsk)
- wind-turbiner



impact of digital on the societal divide

Company ⇄	Country ⇄	Inflation-adjusted ^[5]
Apple		3,000
Microsoft		2,576
Saudi Aramco		2,450
Alphabet		2,000
Amazon		1,900
PetroChina		1,472
Tesla		1,235
Meta		1,078



Alphabet

amazon



PetroChina

Meta

https://en.wikipedia.org/wiki/List_of_public_corporations_by_market_capitalization#2022

Unstable economies are drivers for conflicts

- ➔ Social Mobility (WEF 2019)
 - Ability to move up the pyramid
 - 1) Denmark
 - 2) Norway
 - 3-5 other Nordics
- ➔ “local money more important than religion”
- ➔ Decent work
 - Main driver for instability is **no work**

70% live in countries with increased divide
IMF panel 2019



[Source: World Economic Forum, Palik et al. - Conflict Trends in Africa, 1989–2021, PRIO Paper 2022]

Digital Transformasjon

Tillit

Erosion of social cohesion and societal polarization
særinteresser

Widespread cybercrime and cyber insecurity
samfunnssikkerhet, trygghet

Samfunnssikkerhet

Tillit til digitale systemer

Erosion of social cohesion and societal polarization
særinteresser

Widespread cybercrime and cyber insecurity
samfunnssikkerhet, trygghet

- ➔ TikTok and SocialMedia
 - profiling
- ➔ Hate Speech
- ➔ Deep Fake
- ➔ Artificial Intelligence
 - for whom?
- ➔ Social empowerment & societal benefit
- ➔ Trust enhancement
 - Framework for open AI
 - Protection of society



"On the Internet, nobody knows you're a dog"

[New Yorker, 1993]

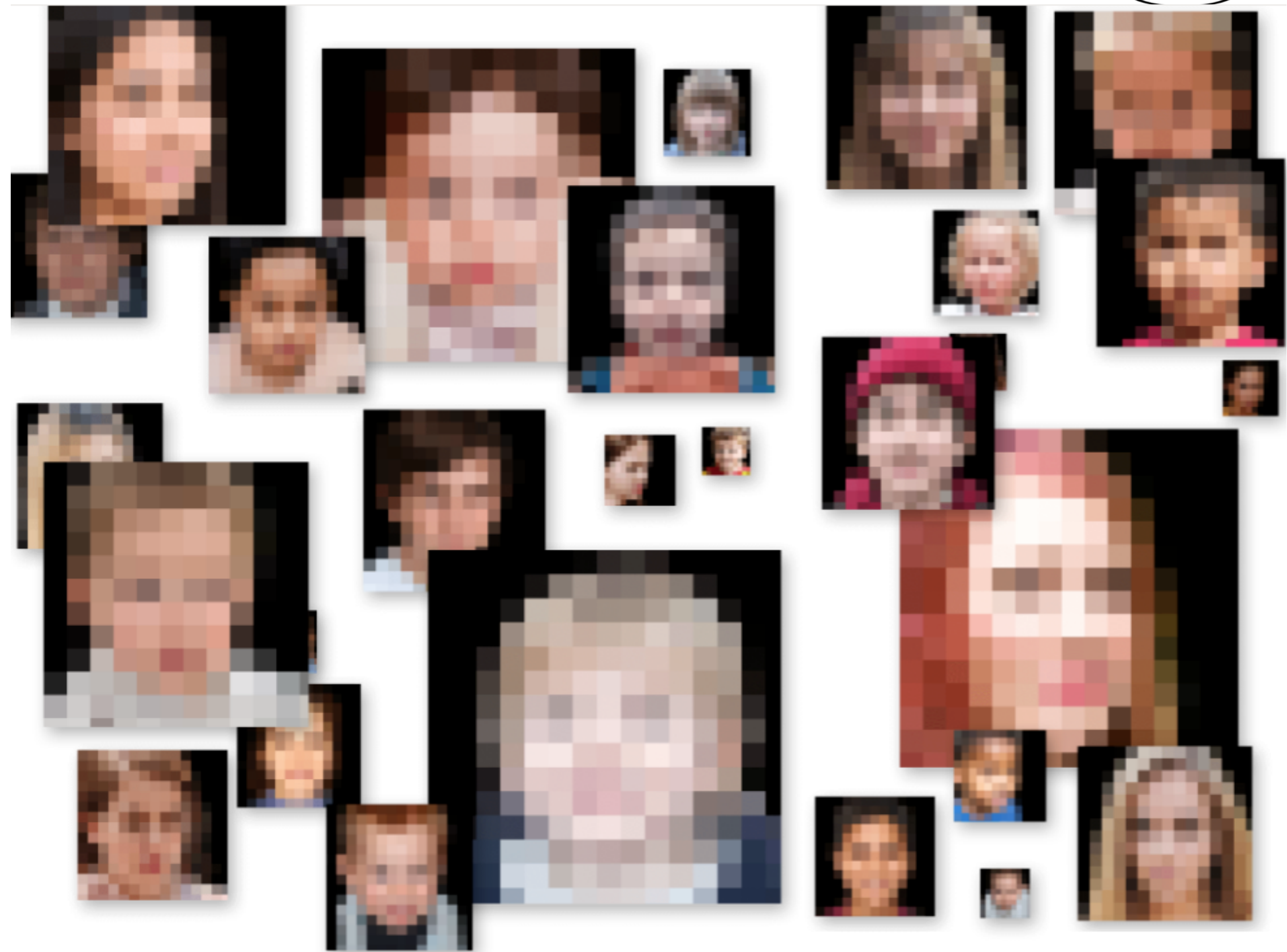
profiling (TikTok)

"Everyone knows you are a dog"

2023

Vekst i barnepornografie

- 1998: 3.000 meldinger
- 2008: 100.000 meldinger
- 2014: 1 Mio meldinger
- 2020: 21,7 Mio meldinger, 65 Million bilder



DER SPIEGEL 49/2021

Tillit til mobile systemer og tingenes internett (IoT)

- Value for owner & society
 - alarm
 - energy balance
- Social empowerment & benefit
 - who controls my energy?
- Trust enhancement

Dec 02, 2022

IoT cybersecurity – Graceful degradation and security by design for IoT devices

Opinion



<https://www.devicechronicle.com/iot-cybersecurity/> Dec 2022

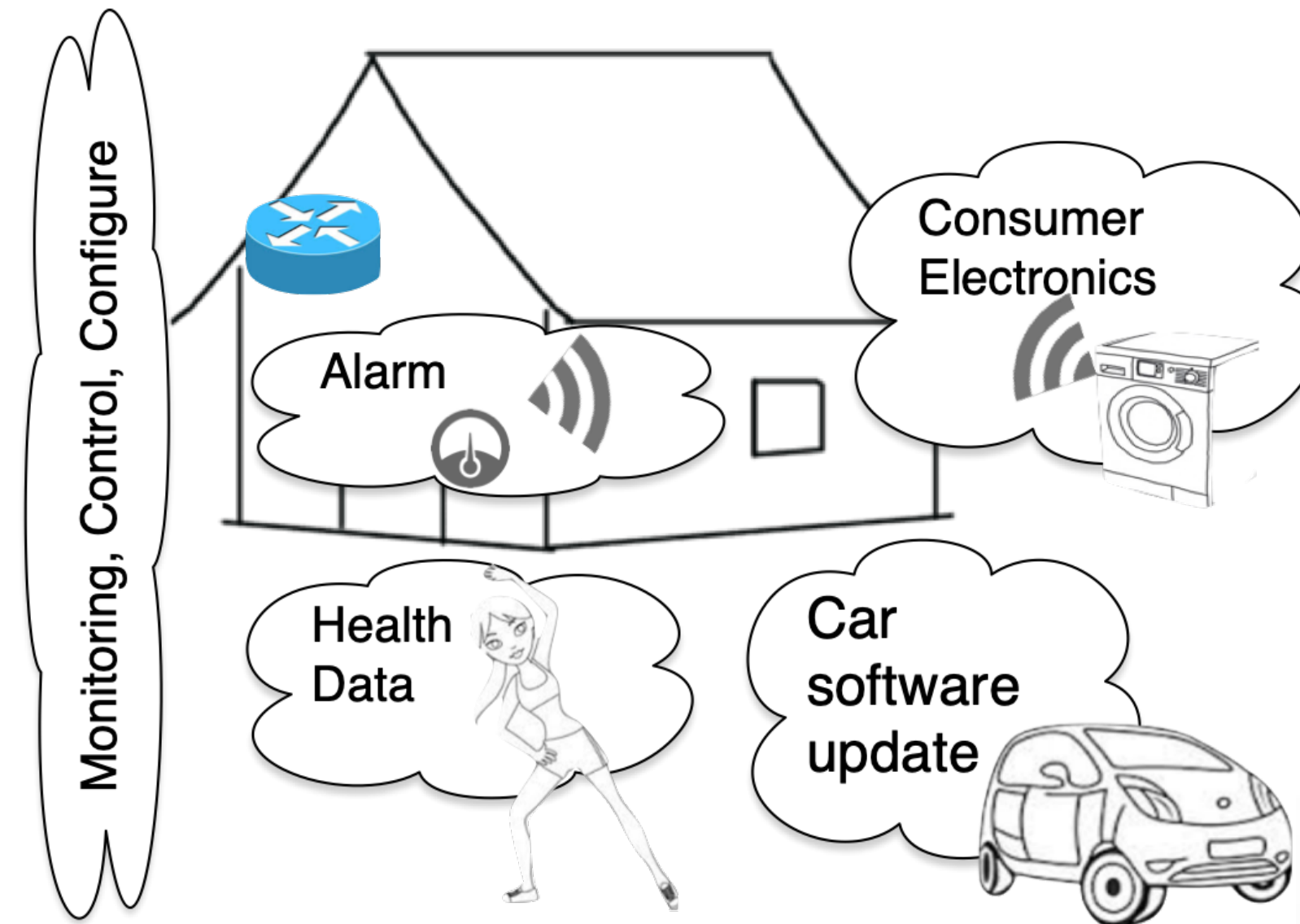
Next battle field: Smart Home

→ Interconnected devices

- audio, video
- consumer electronics
- heating, ventilation
- car charging

→ Home User

- Convenience & Security
- Health



profiling (Tibber, Smartly,...)
“access to my energy data”

“who buys Tibber?”



Digital Transformasjon

Tillit

Samfunnssikkerhet

Samfunnssikkerhet slik vi forsto det

- Beskyttelse
 - grensene
 - vann/luft
 - spionasje
- toll, grensekontroll
- Politi & brannvesen
 - sikkerhet, katastrofe

Power Grid Cyber Attacks Keep the Pentagon Up at Night

A detailed look at why computers running the U.S. electrical infrastructure are so vulnerable to digital threats

By Michael McElfresh and The Conversation | June 8, 2015

The following essay is reprinted with permission from [The Conversation](#), an online publication covering the latest research.

It's very hard to overstate how important the US power grid is to American society and its economy. Every critical infrastructure, from communications to water, is built on it and every important business function from banking to milking cows is completely dependent on it.



Scott Wylie/Flickr

Societal Security in the digital age

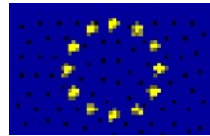
- Framework conditions
 - economics (open Internet, privacy)
 - app control
 - .no has to be "Norwegian laws"
- Protection of data & infrastructure
 - energy is critical infrastructure
 - empowerment of every single person

"Hvor .no står, må Norske regler gjelder"

The Business Model

Mobile Internet in SSA

→ Western World

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

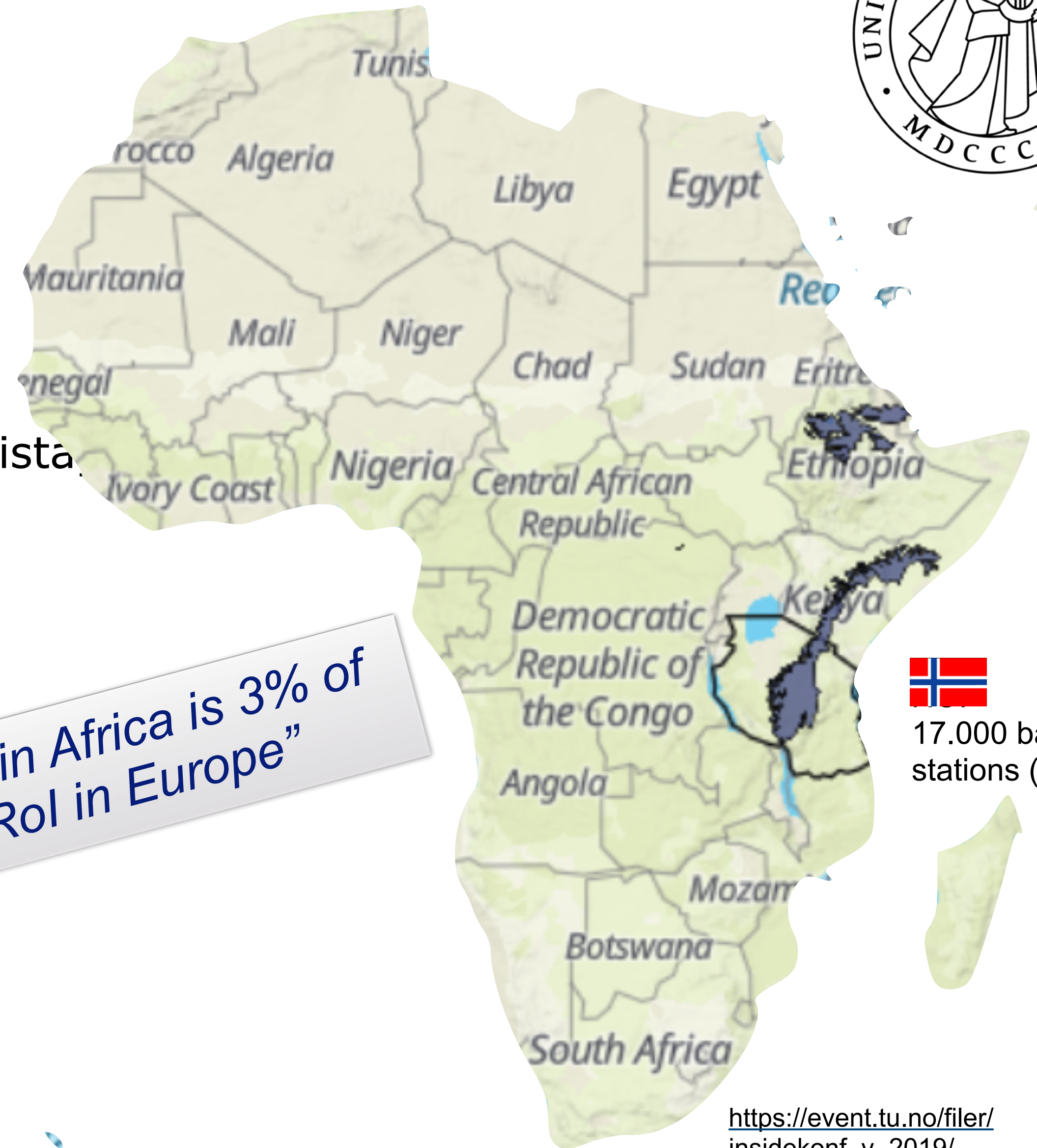
→ Example: Tanzania

- 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/km² [Worldbank, Statista]

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



https://event.tu.no/filer/insidekonf_v_2019/Eivind_Mikkelsen_Trenger_Norge_100.000_basestasjoner.pdf

Oppsummert



- Globale utfordringer
 - Klimakrisen
 - Krigen i Ukraina, Etiopia, Syria,...
 - Materialier (Kobalt, Litium)
 - Digital skille (Europe - Afrika)

- “Tyven er allerede i vårt hus”
 - vi trenger rammebetingelser
 - og mer tillit
 - “hvor det står .no må det være .no inne”

