



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

**Privacy Labelling Workshop, 12Mar2020, Oslo**

# **Privacy Labels as an enabler for the European SMEs in the new global online data-based economy**

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*“The last time I was connected by wire was at birth”*

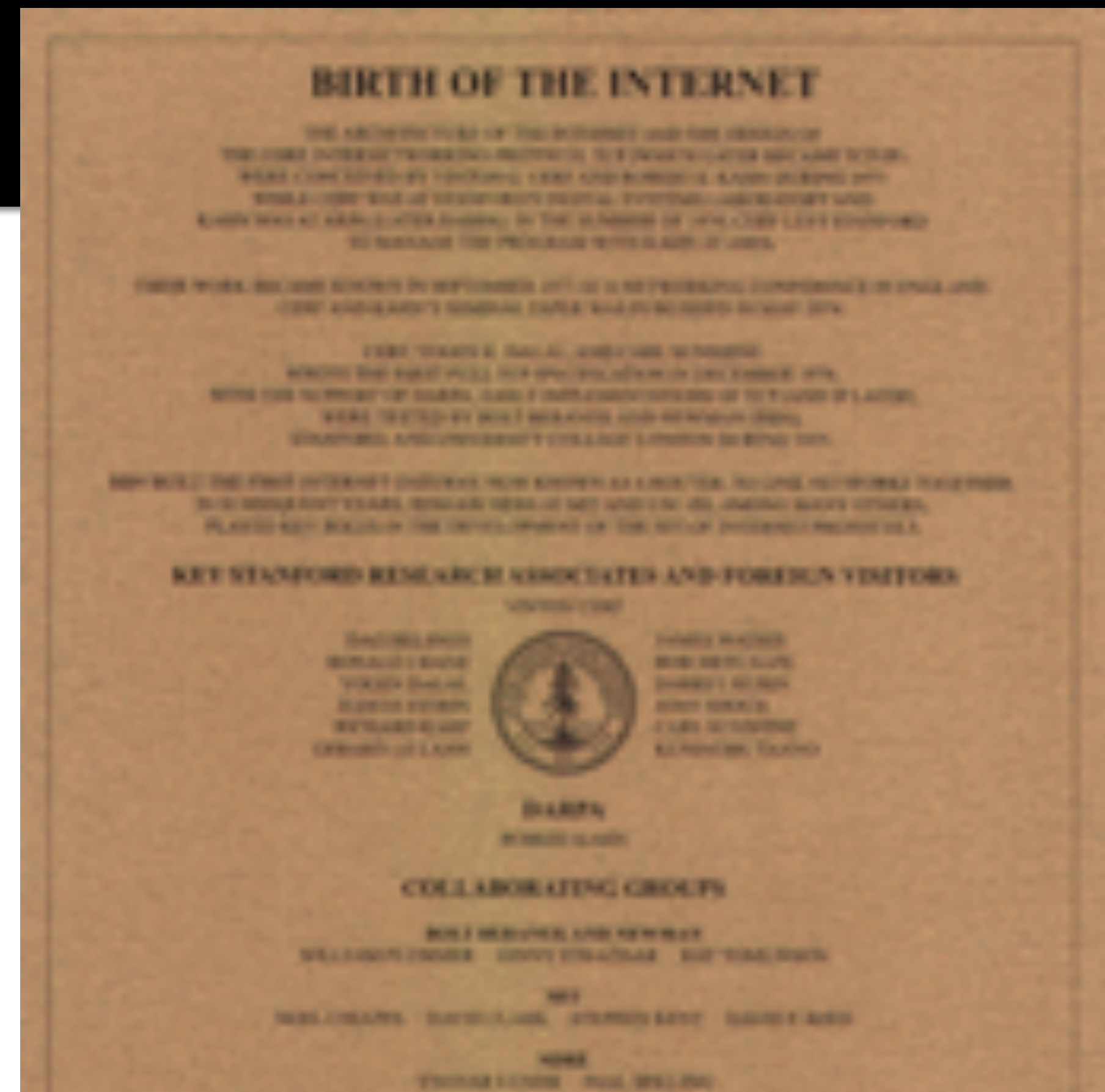
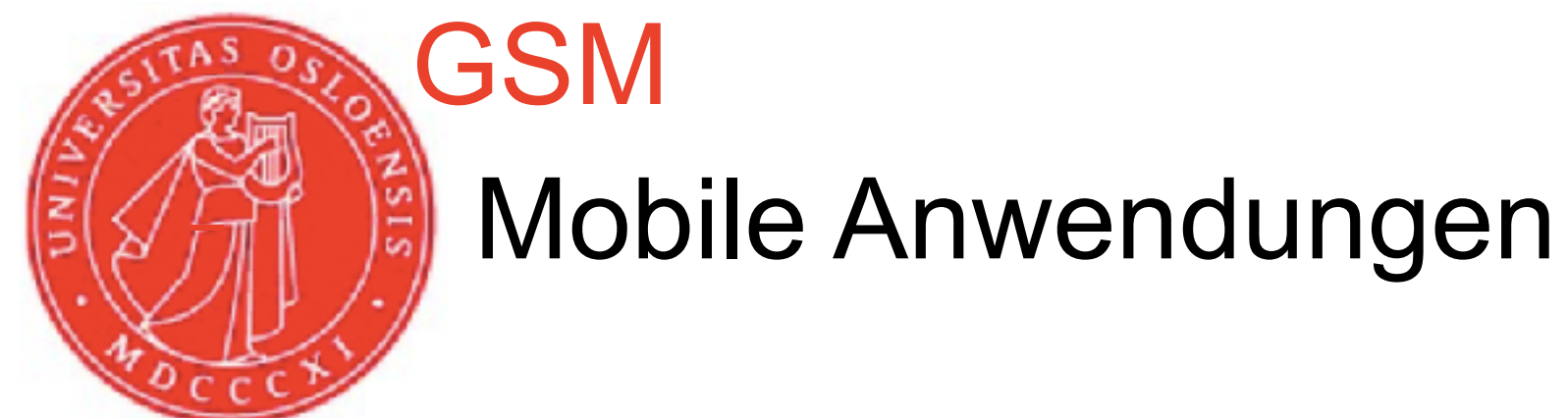
- Information Technology and the role of IoT
- Society5.0
  - the digital divide
- Privacy Labels for IoT
- Conclusions



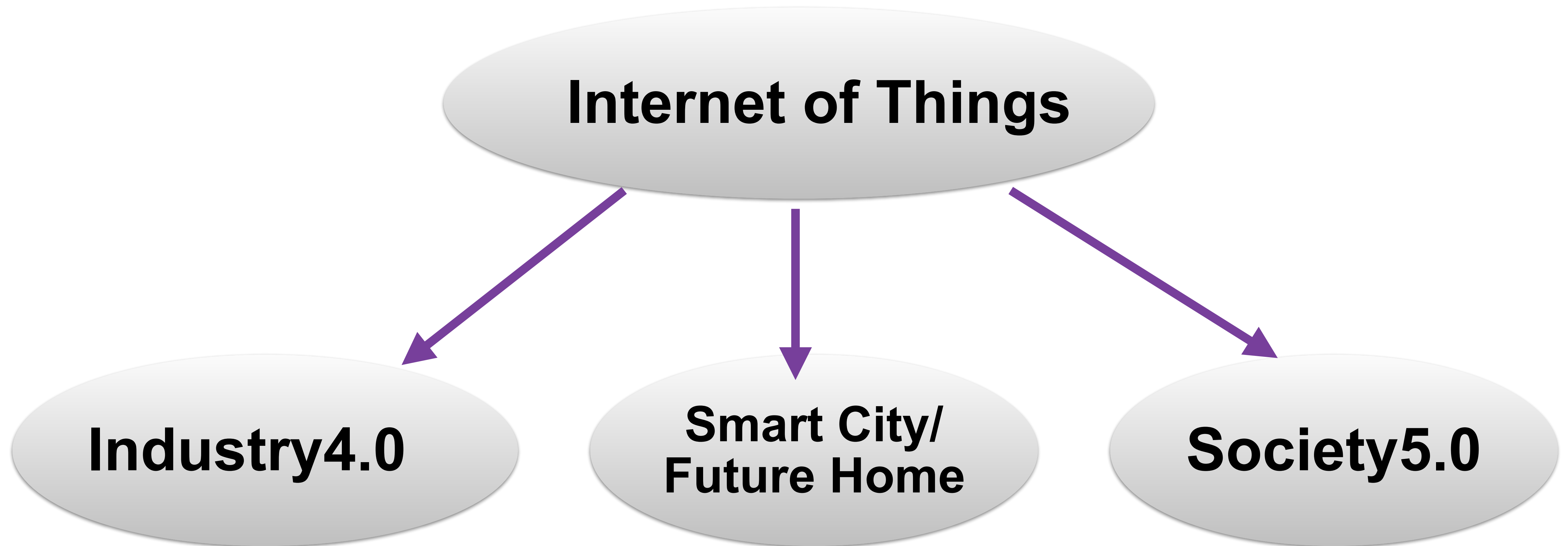


# The Internet and the Nordics

- First Arpanet Connection to **Kjeller** (June 1973)
  - (except Hawai)
- List\_of\_Internet\_pioneers [Wikipedia]
  - Yngvar Lundh, **Paal Spilling**
- Anwendungsentwicklung
  - .php, OpenSource, Linux, Skype, Spotify
  - **OperaSoftware**, FAST Search
  - Nokia, Ericsson
  - **Telenor**, TeliaSonera
- Mobiles Internet:







# Starting Point:

**JOSEPH E. STIGLITZ**  
WINNER OF THE NOBEL PRIZE IN ECONOMICS



# THE PRICE OF ~~ON~~ INEQUALITY

HOW TODAY'S DIVIDED SOCIETY  
ENDANGERS OUR FUTURE



# Digitalisation of the Society



Source: EU commission,  
<https://www.youtube.com/watch?v=BK-UuUnQaIM&feature=youtu.be>

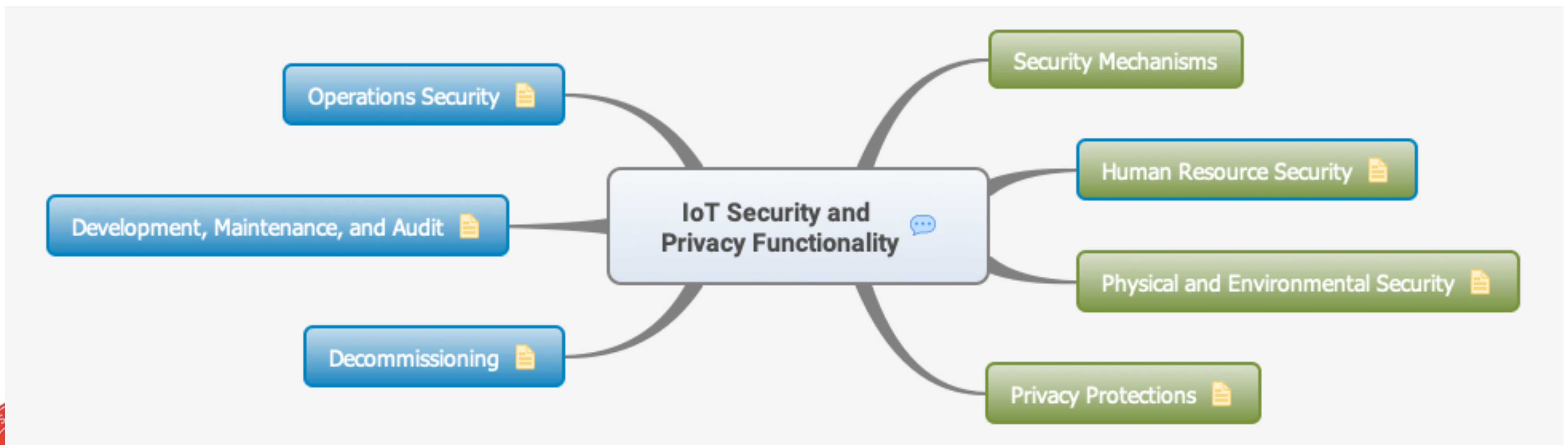




## IoT Security and Privacy Functionality

→ Part of IoT life cycle

- search in Literature, check [SPF.IoTSec.no](https://SPF.IoTSec.no)

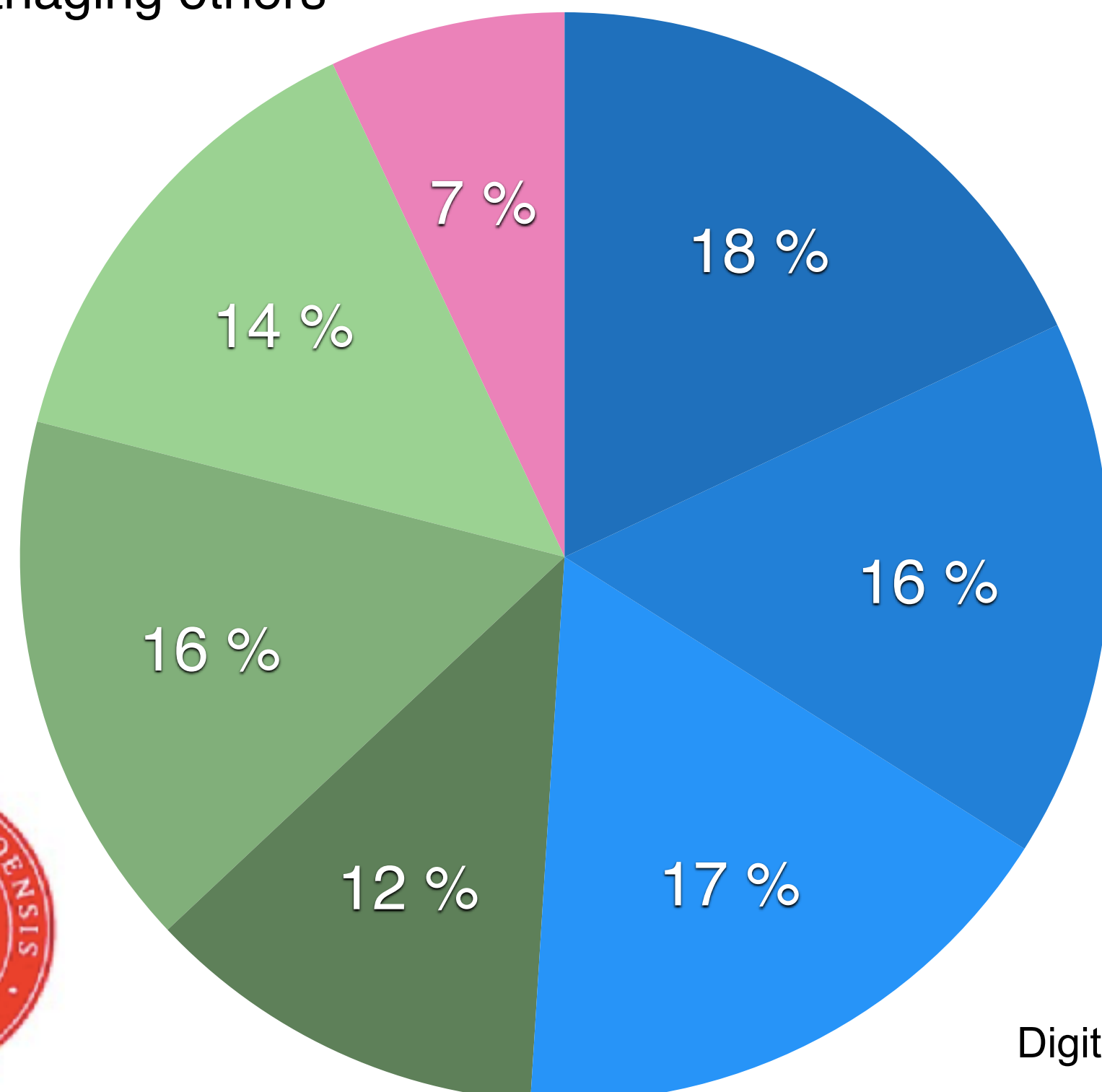


[Source: Elahe Fazeldehkordi [https://its-wiki.no/images/d/d0/IoT\\_SecPrivFunc\\_LifeMap\\_v2.pdf](https://its-wiki.no/images/d/d0/IoT_SecPrivFunc_LifeMap_v2.pdf)]

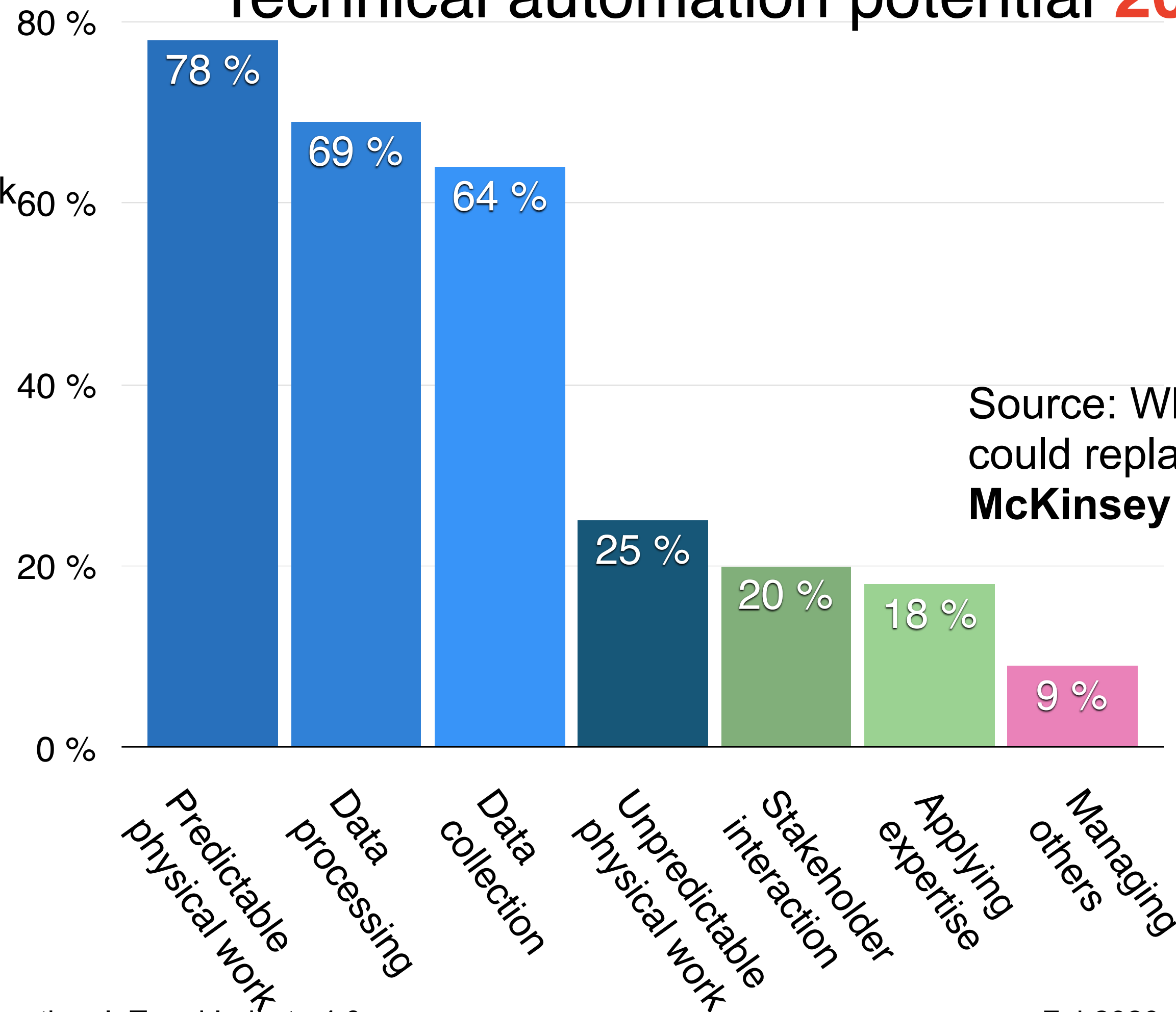
## Automation will come

USA work force time spent [%]

- Predictable physical work
- Data collection
- Stakeholder interactions
- Managing others
- Data processing
- Unpredictable physical work
- Applying Expertise



Technical automation potential **2016** [%]



Source: Where Machines could replace humans, **McKinsey 2016**







## Example: Decent Work

- Centre for Monitoring the Indian Economy:
- 11 Million jobs lost in 2018
  - ➔ 9 Million in rural areas
  - ➔ 8.8 Million women lost work
- 31 Million look for work
  - ➔ most of them in RUrban area
  - ➔ from 80/20% Rural/Urban to
  - ➔ 70 / 15 / 15% Rural / RUrban / Urban



Tall publisert i januar av Centre for Monitoring the Indian Economy (CMIE) viste at hele 11 millioner indiske jobber gikk tapt i 2018.

Brorparten av disse jobbene, rundt ni millioner, var på landbygda. Og hele 8,8 millioner av dem som mistet jobben, var kvinner.

Samme organisasjon rapporterte i mars i fjor at 31 millioner indere aktivt leter etter jobb.

**Feilslått pengepolitikk**

Hurtig vekst har vært sentral i Modis politiske visjon om å gjøre India til Kinas største økonomiske utfordrer.

Et av hans mest omfattende økonomiske tiltak kom i 2016. Da trakk han 86 prosent av kontantene ut av sirkulasjon over

**India**

Republikken er v  
nest største land  
enn 1,3 milliard  
gere og forvent  
passere Kina i f  
løpet av noen å

Josef Noll @josefnoll · Feb 8

Dystert lesing i dagens @Aftenposten om at 11 Mio jobber gikk tapt i 🇮🇳 i 2018, og at 80% av de som mistet jobben var #Kvinner. Knappt 90% av jobber forsvant i Landsbyer. #DigitalInclusion #InternetLite #DigitalEmpowermentPlatform @dagiulstein @NorwayMFA @nikolaiastруп

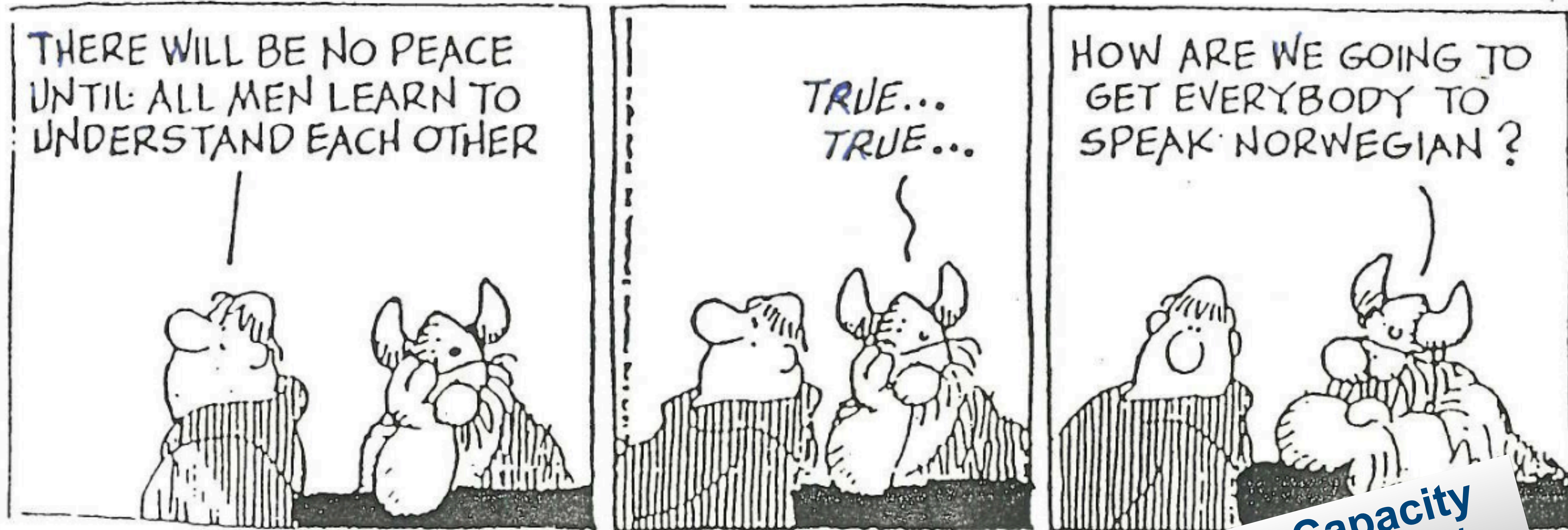


# Economic Perspective [Kågå, 2017]

- Tax system
  - ➔ Control of data disappears -> income goes down
  - ➔ digital competence -> digital divide increases
  - ➔ power of decision: industry vs politics
- Future in salary
  - ➔ salary gap increases: high income for the topp, minimum wage for the workers
  - ➔ capital income bigger than salary income
- Jobb qualification
  - ➔ previously: 50% of jobbs for no-knowledge, now only 10% of jobbs
  - ➔ re-industrialise the Nordics
  - ➔ focus on education and knowledge
- “5 big IT had an increase of 950 billion USD in value in 2016/2017 (over 10 months), more than combined GDP of NO, DK, FI

“The Trust-Society in the Nordics is our strength as compared to other countries. Vi use technology faster, er productive and have a high degree of adaptability”  
Leif Arne Jensen, PwC, Norway





**Inclusiveness - Trust - Capacity**  
United Nations High Level Panel on Digital  
Cooperation 2019





# Economic aspects

- Google in Norway (2019)
  - **Income 178** MNOK
  - **Tax 4** MNOK (2.2% of income)
- Amazon (2018 data)
  - 20% of revenue from sales of data
  - 10-15% advertisement costs for SMEs
  - 5% own advertisement advantage
  - SUM: **40% advance** as compared to SME



Google Norway AS betalte i fjor 4 millioner kroner i skatt. Inntektene var på 178 millioner og lønnskostnadene på 89 millioner.

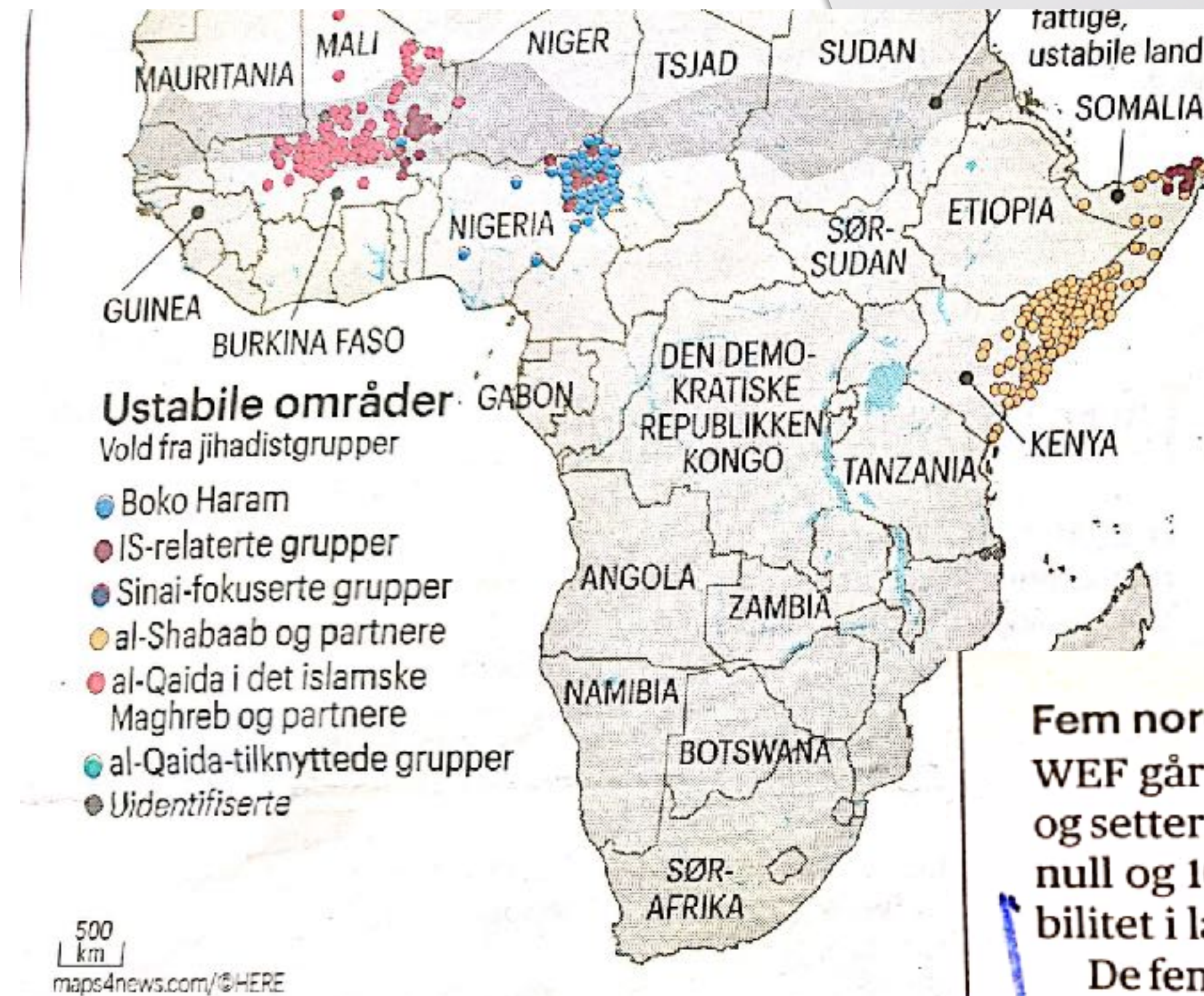
[Aftenposten, 2020]



# Impact on the society

- Social Mobility (WEF 2019)
  - ➔ Ability to move up the pyramide
  - ➔ 1) Denmark
  - ➔ 2) Norway
  - ➔ 3-5 other Nordics
  - ➔ then: NL, CH, AU
- No-work
  - ➔ Main driver for instability

70% live in countries with increased divide  
IMF panel 2019



oppfattes som rettferdige eller ukorruperte. I Somalia har al-Shabaab gang på gang blitt presset bort fra et område, men så har ingen klart å fylle det med noe som betyr noe for menneskene der, og så kommer al-Shabaab tilbake, sier Bøås.

Det er «asymmetrisk krigføring» i praksis: den ene parten, i disse tilfellene jihadistene, er svakeste part og bruker andre metoder enn det militære. Men de klarer samtidig å utnytte egne fordeler og motpartens svakheter.

- Både al-Shabaab og islamistene i Sahel er smarte nok til å skjønne at de ikke kan vinne militært. Deres langsiktige mål er å

## Fem nordiske er fem på topp

WEF går gjennom harde data for 82 land og setter disse sammen til en skår mellom null og 100 for å sammenfatte sosial mobilitet i landene.

De fem nordiske landene tar de fem plassene på toppen. Danmark er best og Norge er nummer to.

På pressekonferanse mandag snakket WEF om «the Nordic dream».

NL, CH, AU



## Towards Measurable Privacy - Privacy Labelling



- “Measure, what you can measure - Make measurable, what you can’t measure” - Galileo

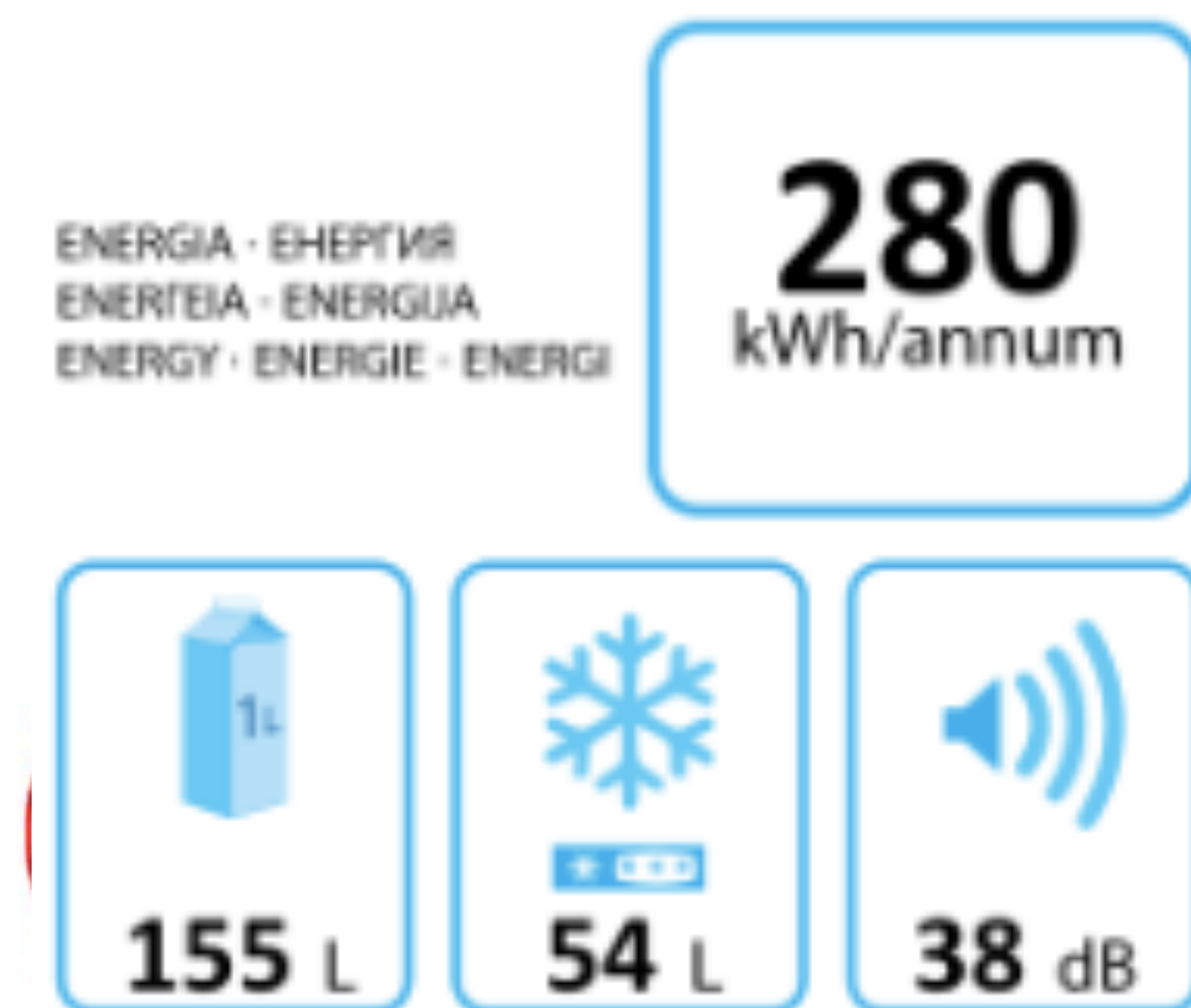
- Privacy today

- based on lawyer terminology
- 250.000 words on app terms and conditions

- Privacy tomorrow

- A+: sharing with no others
- A: ...
- C: sharing with ....

- The Privacy label for apps and devices



### Appfail Report - Threats to Consumers in Mobile Apps

The Norwegian Consumer Council analysed the terms of 20 mobile apps. The purpose is to uncover potential threats to consumer protection hidden in the end-user terms and privacy policies of apps.



## Comparison with the Mobile Network

- Facebook's Free Basics
  - ➔ 0-rated content (free usage)
  - ➔ 3-months break even
- The con's of Free Basics
  - ➔ every click goes to Facebook
  - ➔ Net-neutrality
- Privacy Labelling
  - ➔ National Knowledge Portal
  - ➔ European Label



**Premier Minister  
Narendra Modi (India)**

“no to  
Free Basics”  
we have been  
colonised once



## Conclusions

- Digital Gap increasing
  - ➔ 70% in countries with increased divide
- User experience
  - ➔ Clear first view, “impression”
  - ➔ Second level, more details
    - ➔ basis for acceptance
  - ➔ Third level, privacy “maniacs”
- Business advantage for SMEs
  - Counter-act on (IT-)platform advantages
  - Information protection - privacy labels



4

**2,2% tax**  
by Google (2019, NO)

Google Norway AS betalte i fjor 4 millioner kroner i skatt. Inntektene var på 178 millioner og lønnskostnadene på 89 millioner.



## Background slides





## About privacy

- 1980: OECD guidelines ([oecdprivacy.org](http://oecdprivacy.org))  
Guidelines Governing The Protection of Privacy and Transborder Flows of Personal Data.
- 2005: Kim Cameron - 7 laws of identity
- 2011 OECD update on privacy guidelines
- 2012 EU Data Protection Reform
  - ▶ “Right to be forgotten”
  - ▶ Easier access to one’s data; right to data portability
  - ▶ Data protection **by design** and **by default**
  - ▶ Stronger enforcement of the rules - up to 4% of annual turnover
- From 2018: General Data Protection Regulation (adopted in April 2016)
  - ▶ EU-wide harmonization
  - ▶ User control

More limitations on sending data outside

<http://www.oecd.org/sti/ieconomy/49710223.pdf>

[http://europa.eu/rapid/press-release\\_MEMO-15-6385\\_en.htm](http://europa.eu/rapid/press-release_MEMO-15-6385_en.htm)

1. Collection Limitation Principle - “limits to the collection of personal data...”
2. Data Quality Principle - “relevant and necessary for the purpose of usage”
3. Purpose Specification Principle - “specified prior to collection - change of purpose”
4. Use Limitation Principle - “non disclosure, not for others than those” - “need consent”
5. Security Safeguards Principle - “protection by reasonable security safeguards”
6. Openness Principle - “about developments, practices and policies”
7. Individual Participation Principle - “individual to have insight, answers in reasonable time...”
8. Accountability Principle - “data controller should be accountable”





# Instantaneous and high-resolution

- HAN Port
  - energy usage
  - online monitoring (1/s ... 1/min)
- Typical Norway
  - Power (every 2.5s)
  - Current (every 10s)
  - Voltage (every 10s)
- Connected devices
- Security

physical security, encryption



AMS HAN port (NEK)

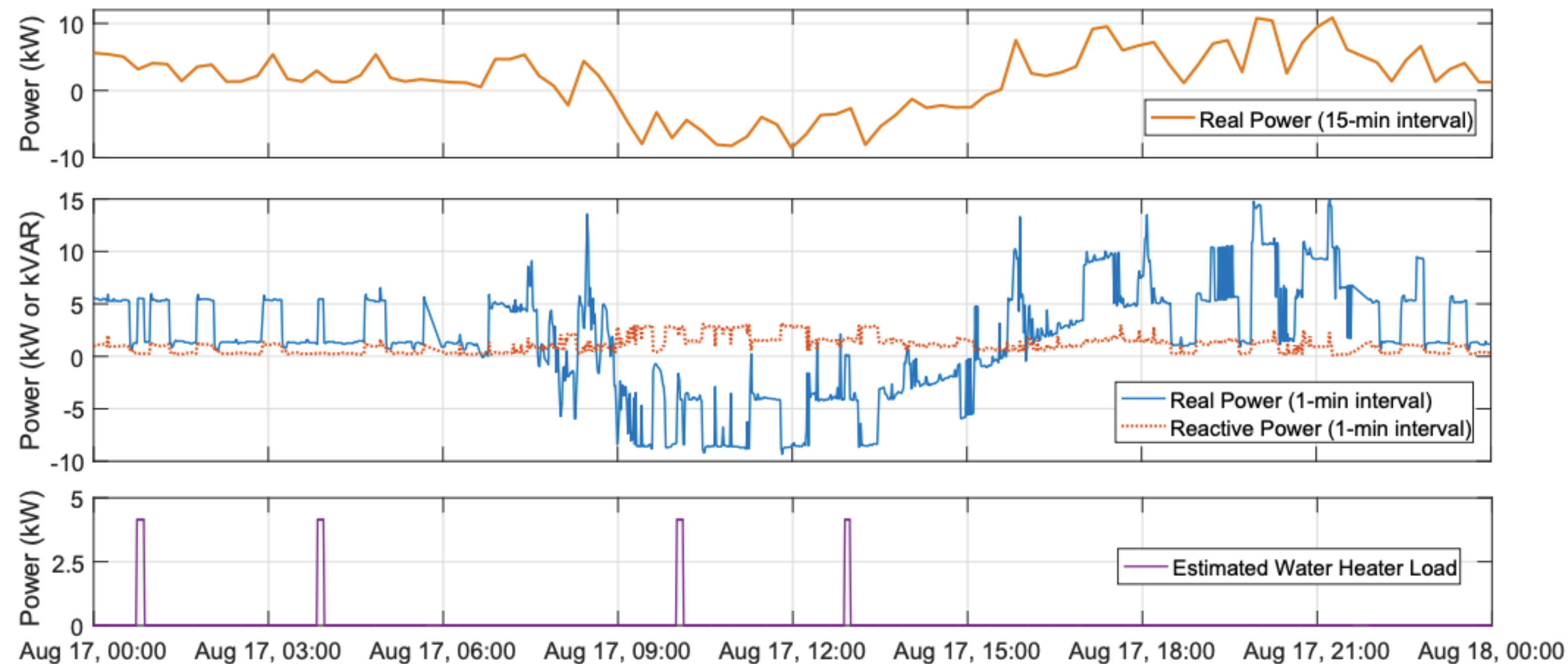
<https://www.nek.no/info-ams-han-brukere/>IoT and Sustainability





## Meter analysis - knowledge about you

- Security
  - ➔ (unencrypted) wireless data
  - ➔ Cloud computing
  - ➔ “is my HAN port open?”
- Information & control
  - ➔ energy saving (water heater)
  - ➔ load control
  - ➔ Fridge, freezer, heat pump,...
  - ➔ usage pattern, “door is open”
  - ➔ “which TV channel do you watch” (every 2s)



[http://nilmworkshop.org/2018/proceedings/Poster\\_ID17.pdf](http://nilmworkshop.org/2018/proceedings/Poster_ID17.pdf)

**Dites NON ! aux compteurs communicants LINKY**

<https://www.cnet.com/news/researchers-find-smart-meters-could-reveal-favorite-tv-shows/>





## “Amazon Echo” in your smart meter

- Amazon/Google/Apple home control
  - works on your command
- “Amazon HAN connect”
  - works all the time
  - brings all your information to the cloud

**Amazon Echo/  
Alexa**



**Apple  
Home Kit**

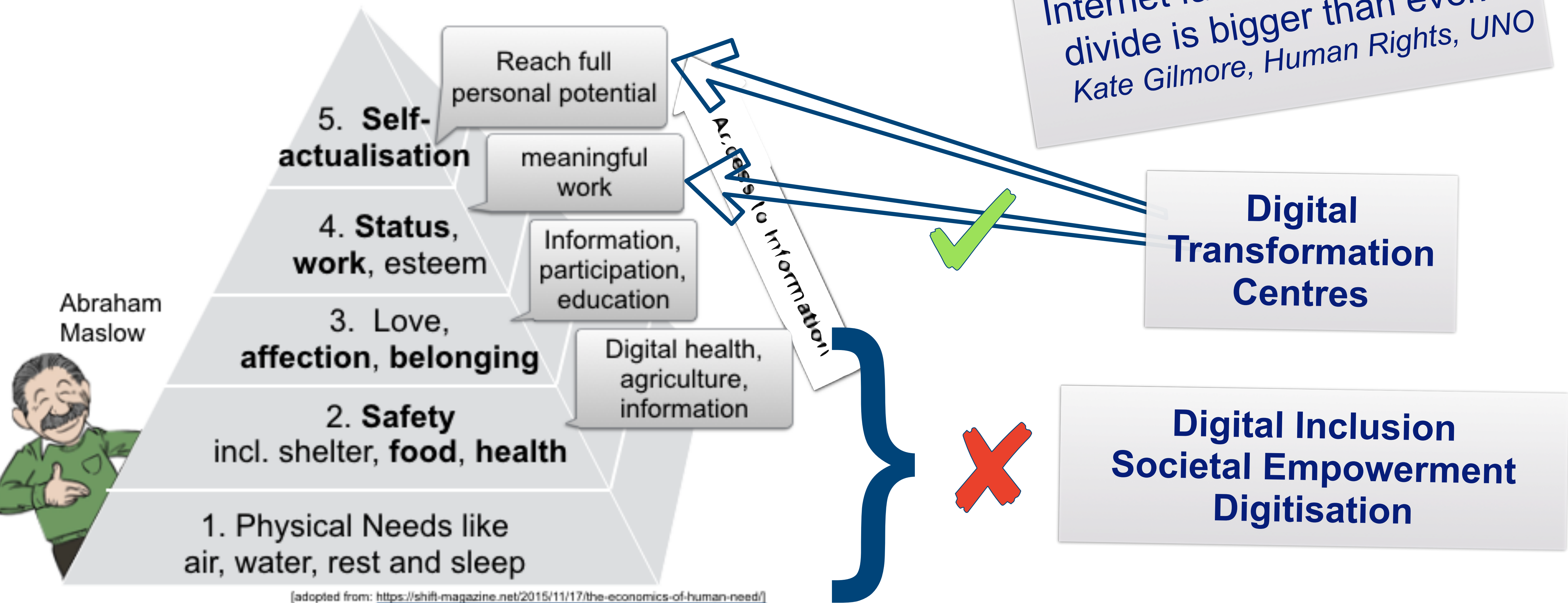


**Google  
Home/Nest**



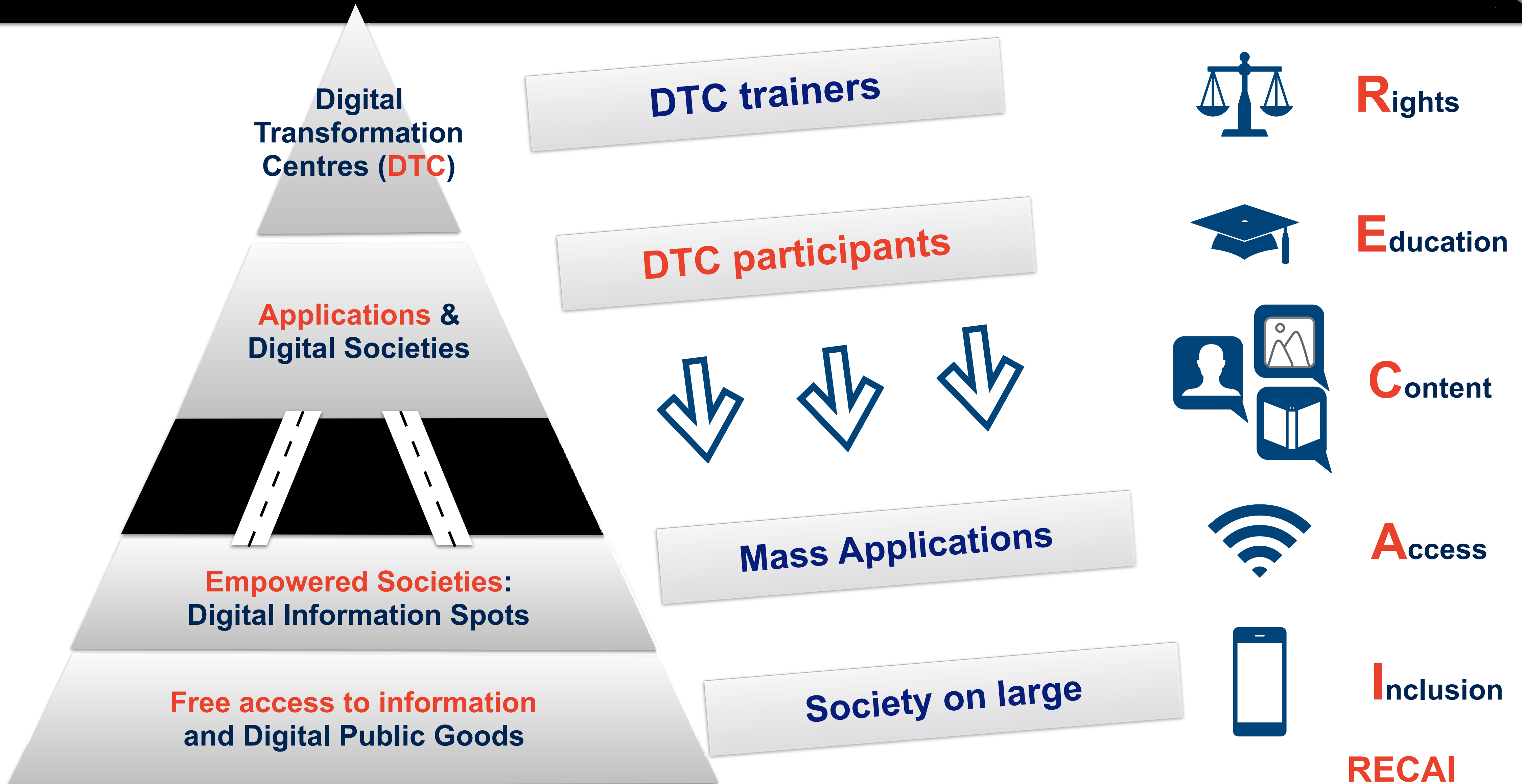


# Holistic view on Digital Societies





# Close the Gap





# Conclusions on Privacy Label

- Holistic view on Privacy Label
- RECAI
  - **R**ights (regulatory framework)
  - **E**ducation (Open availability - freemium)
  - **C**ontent (DTCs to create apps for the mass market)
  - **A**ccess (free access to information)
  - **I**nclusion (digital first, participatory society)

