UNIVERSITY OF OSLO

VDE-Netzwerk Medizintechnik & LifeScience Electronic
27 Okt 2026

Von Afrika lernen:
Chancen digitaler Gesundheitsinformation

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https://georank.org/size/germany/south-africa

From Academia to Mobile Broadband
understanding the business

Jun1973: NO (Kjeller) & GB connected

Jun1986: RARE/TERENA…GEANT (NRENs in Europe)

1993 - **privatisation** of 2G (GSM)

1999 - 3G (UMTS): 3 x ROI expectation, Uni co-dev

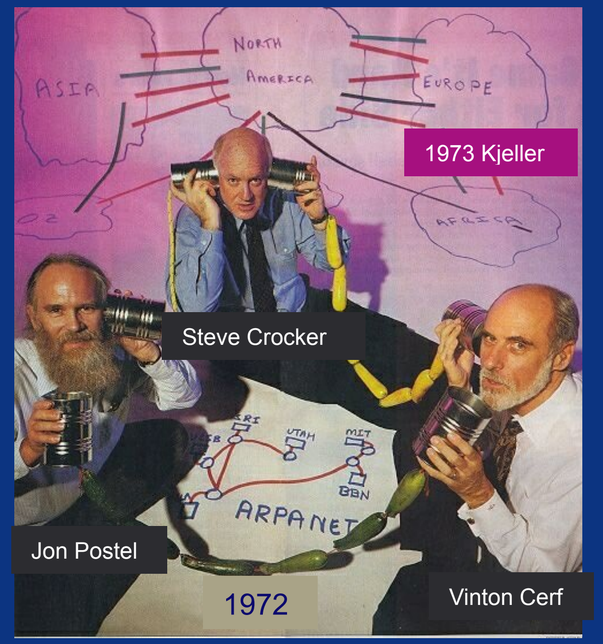
2004 - 4G (LTE): 120 km range, Supplier dev

Aug2003: Reykjavik “Cybersecurity"

Jun2020: UN “Digital Cooperation” recommendations

Basic Internet Foundation:
“The walk on the Internet”

“The mobile Internet became commercial”



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



Vint & Sigrid, Nordunet 2003

UN Panel, 2019-2020



Warum der Titel?
Norwegen - Afrika





1. “The Future of Africa is the Future of Europe”

2. “Connect the Future” of every single human

3. Health is a global issue: Covid, Pandemics

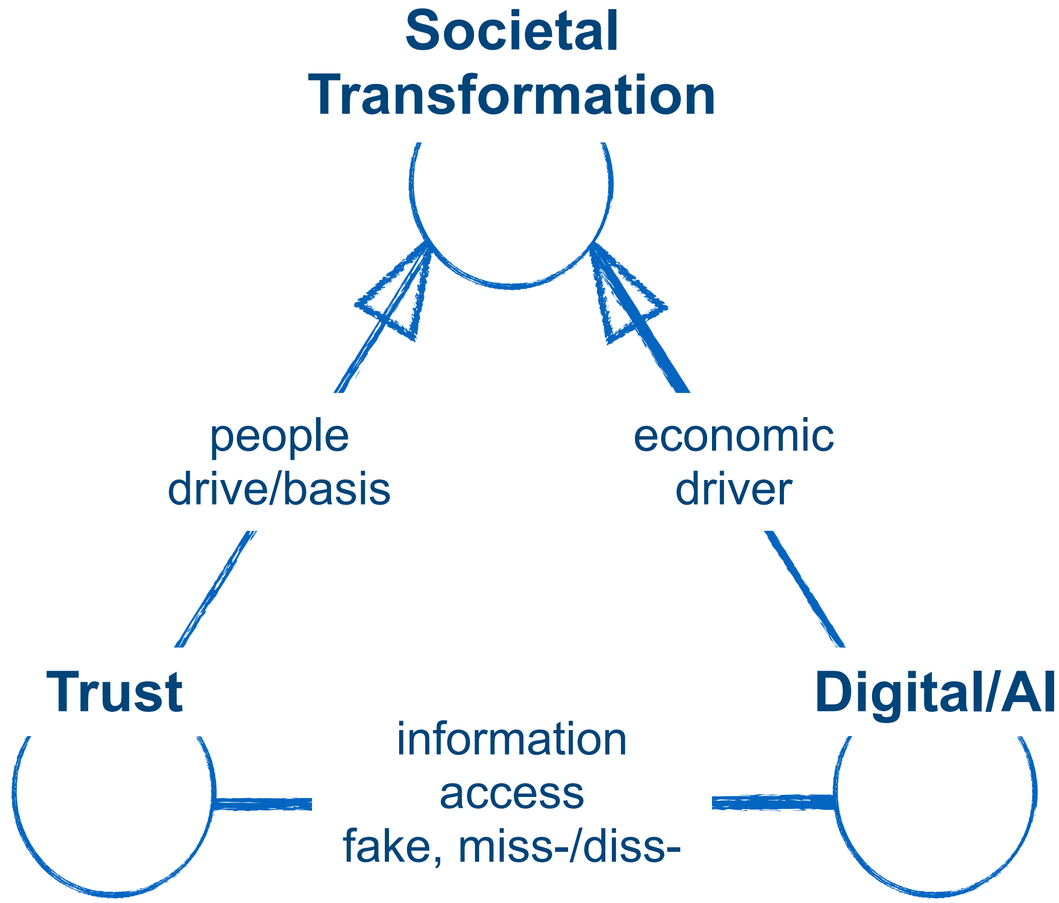
Societal Transformation: Energy, Climate, Pandemics, AI, Economics



Main driver for conflicts is **no work**

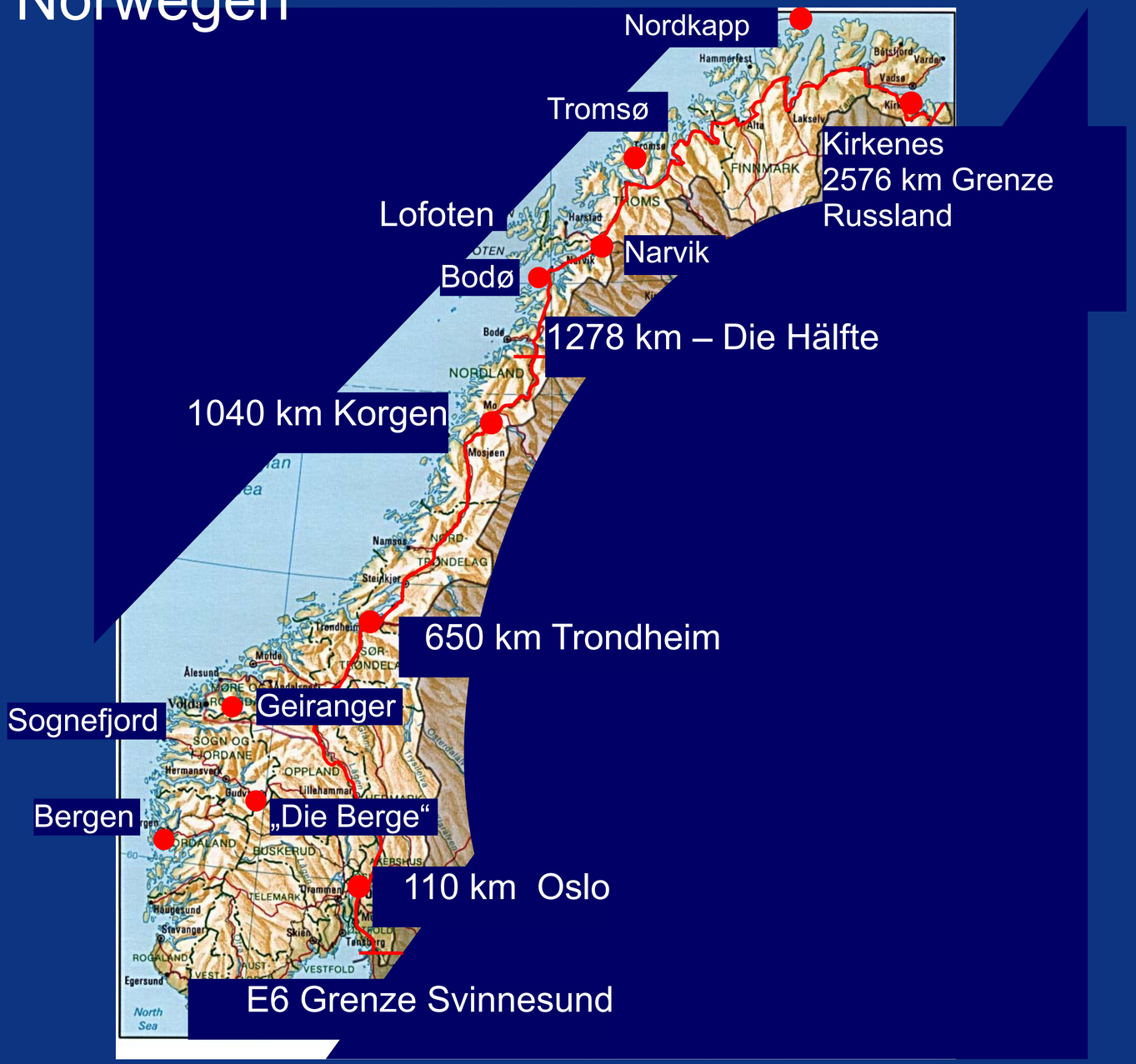
PRIO 2022

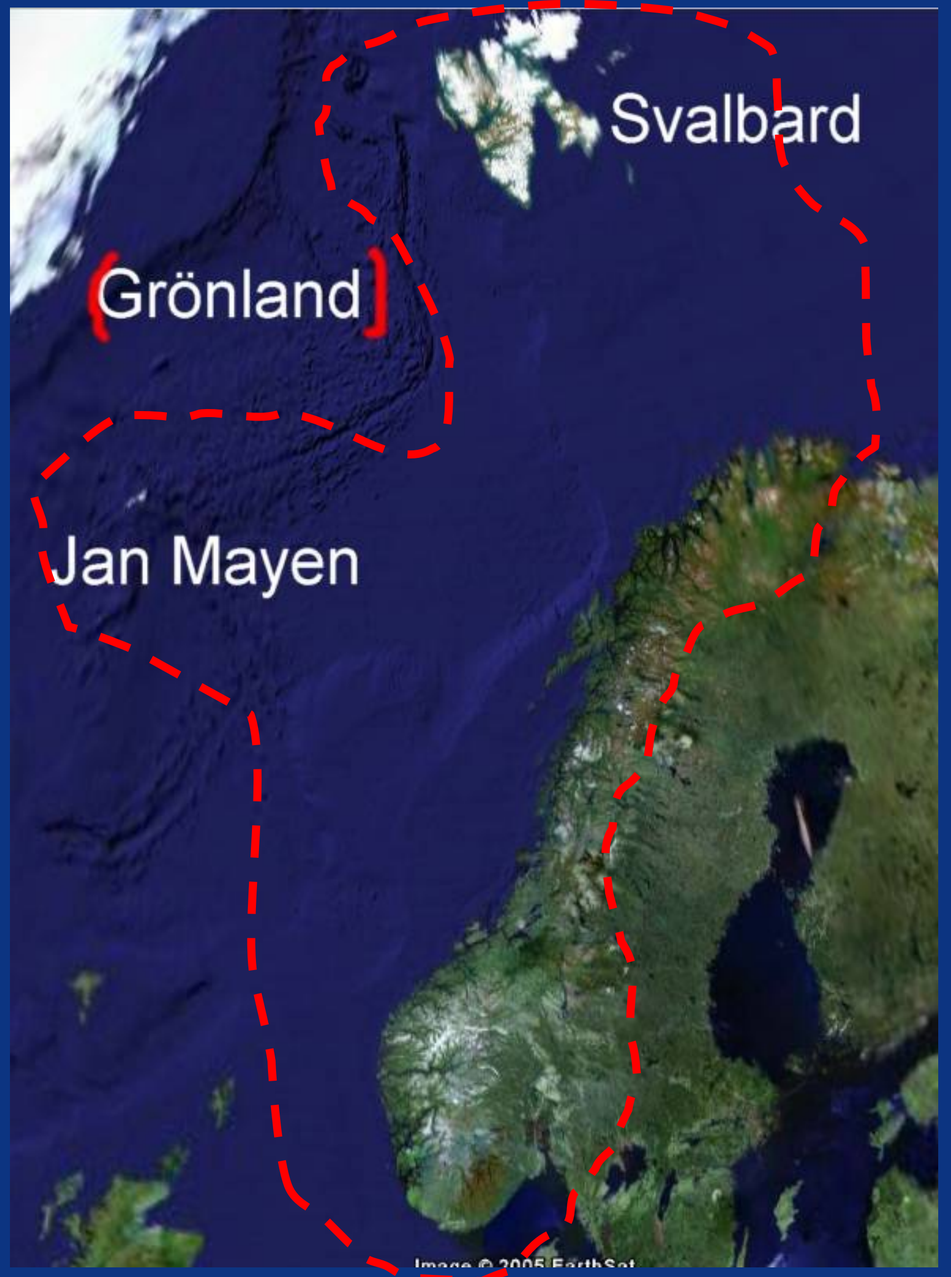
[Source: Palik et al. - Conflict Trends in Africa, 1989–2021, PRIO Paper 2022]



wie sieht es bei uns aus?

Norwegen


Nordkapp
Tromsø
Lofoten
Narvik
Bodø
Kirkenes
2576 km Grenze
Russland
1278 km – Die Hälfte
1040 km Korgen
650 km Trondheim
Sognefjord
Geiranger
Bergen
„Die Berge“
110 km Oslo
E6 Grenze Svinnesund
FINNMARK
TROMS
NORDLAND
NORD-
TRØNDELAG
SØR-
TRØNDELAG
OPPLAND
BUSKERUD
AKERSHUS
TELEMARK
VESTFOLD
ROGALAND
HORDALAND
SOGN OG
FJORDANE
MØRE O
North
Sea


Svalbard
Grönland
Jan Mayen

Holmenkollen
Fram (Amundsen)
Heyerdal





Geiranger
Die Fjorde



Fischen
Natur erleben







Mitternachtssonne



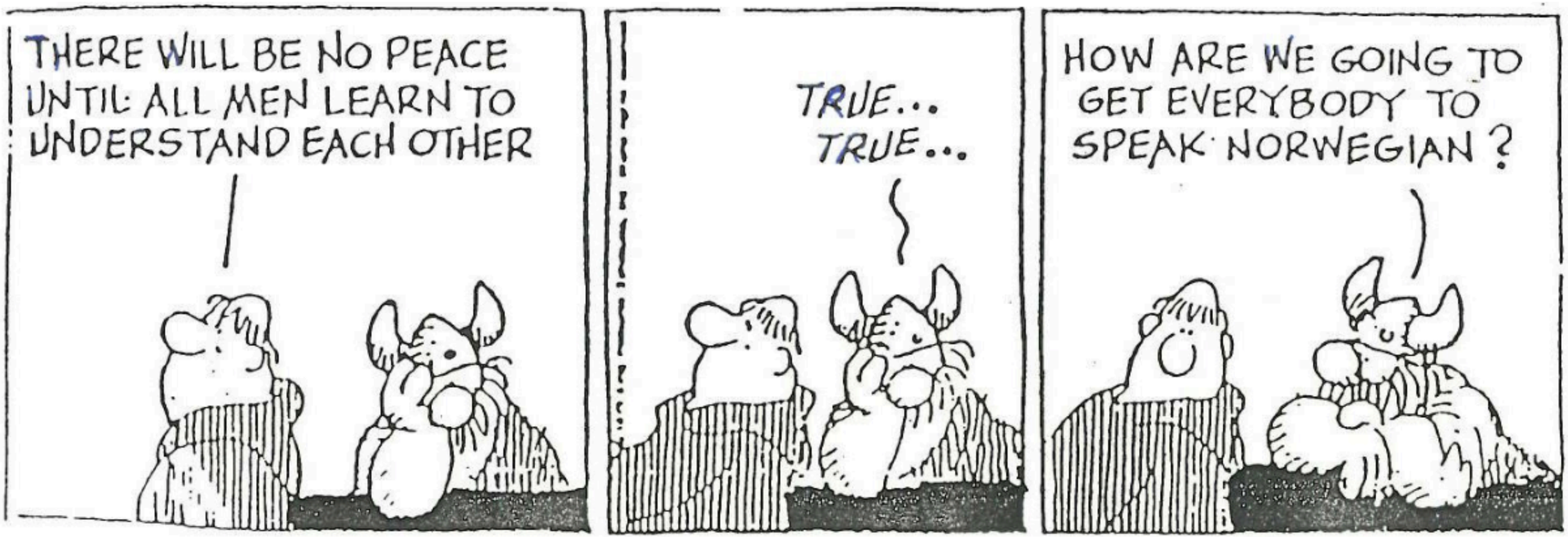
Lofoten, 23:54

Und Winterzauber



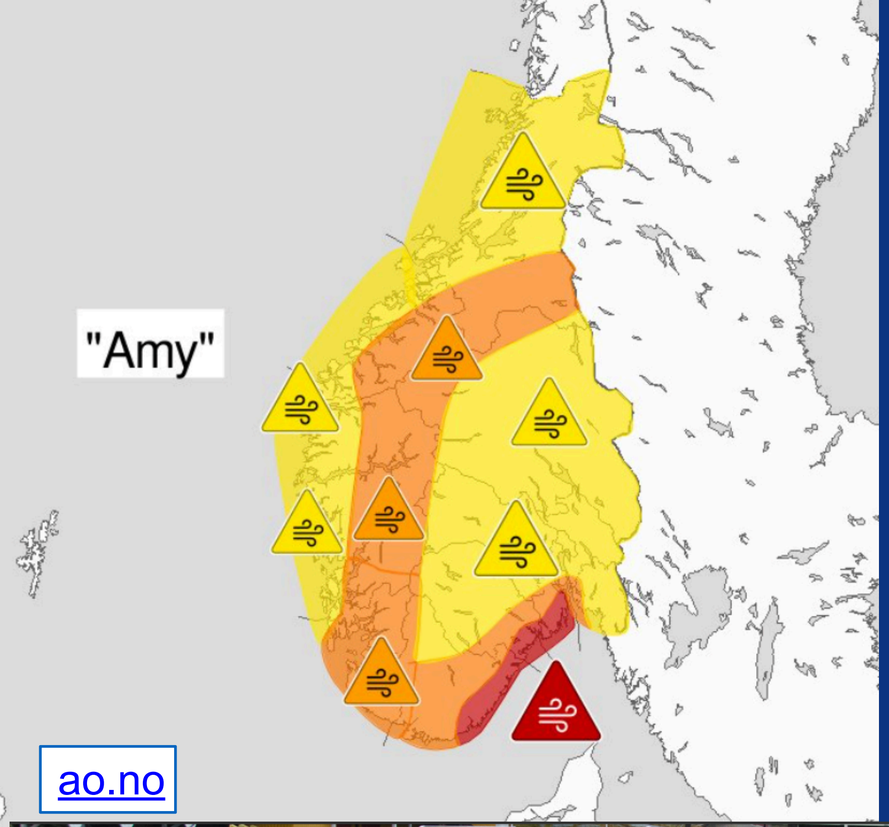
Korgen, 2.12., 13:30

Das Eigenverständnis der Norweger



Sturm “Amy” (Okt 2025)

155.000 Haushalte = 8% der Bevölkerung



ao.no

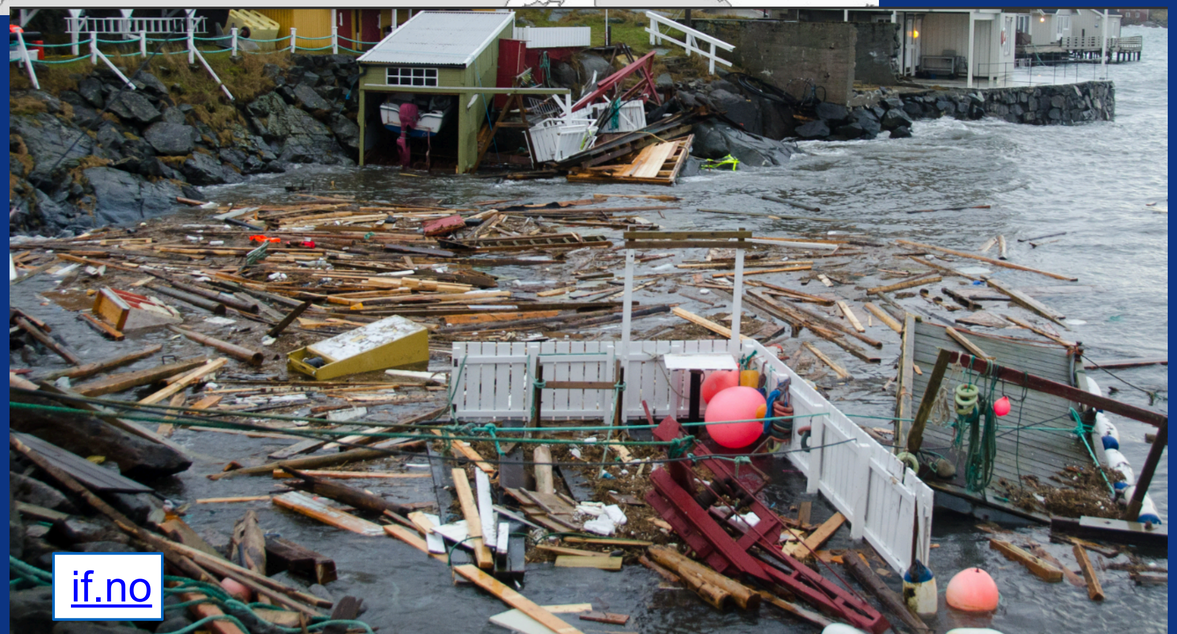
“349 mNOK”
Gjensidige Jahresbericht 2025

I oktober ble flere land i Nord-Europa rammet av stormen Amy. I Skandinavia ble Norge hardest rammet, med over 10 000 skader. Gjensidiges kostnader knyttet til stormen ble beregnet til cirka 349 millioner

“3 milliarder NOK”
Naturskade, KLP Jahresbericht 2025

De samlede kostnadene rapportert til Norsk Naturskadepool for alle naturskader i 2025 var om lag 3 milliarder kroner, opp fra 1,4 milliarder kroner i 2024. Den største enkelthendelsen i 2025 var stormen Amy, som traff store deler av Sør-Norge i oktober.

214% gestiegen (NOK 1,4 Mrd) i 2014



if.no



expressen.se

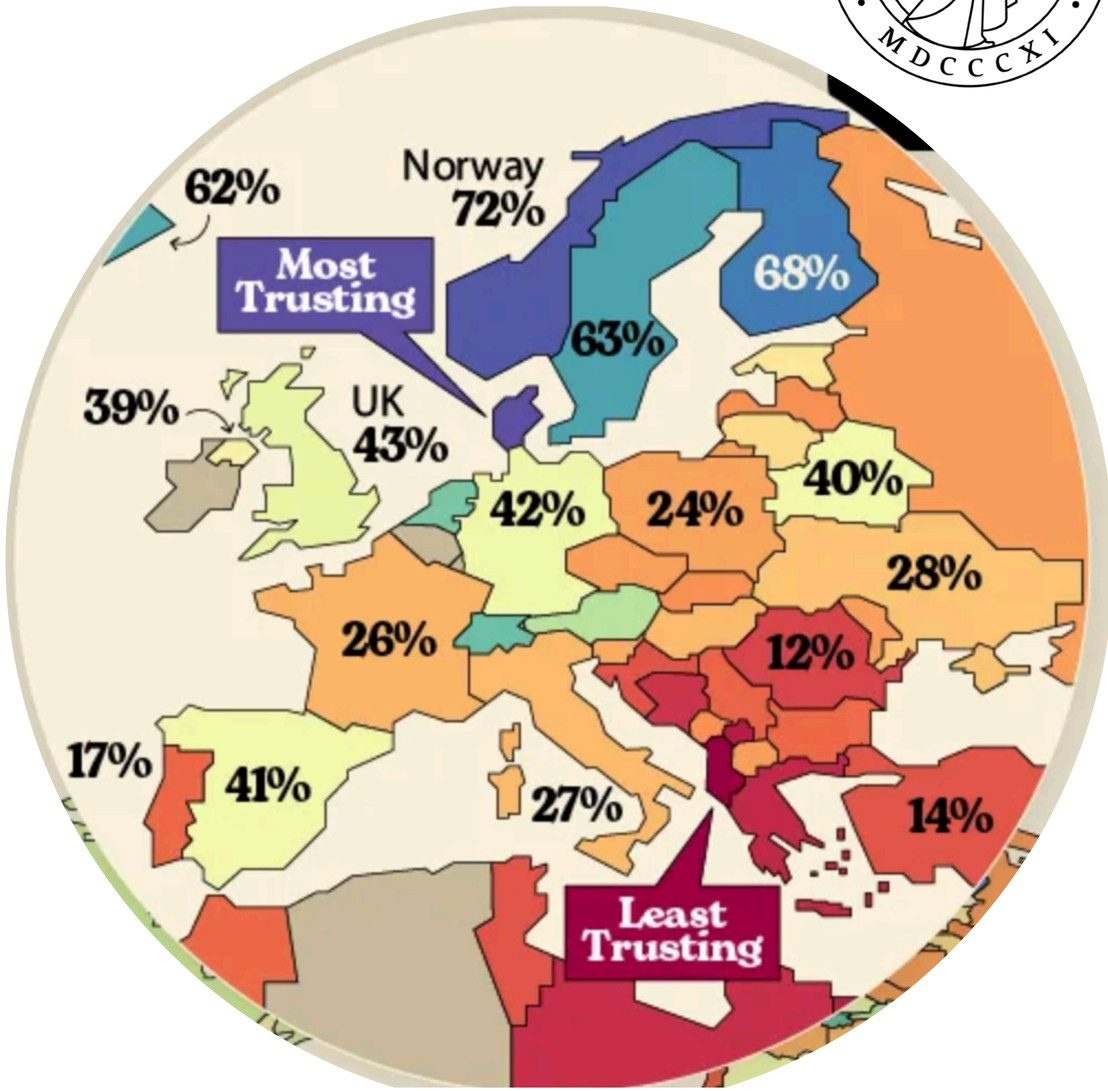


500 år gammel eike

Was ist besonderes am Norden?

- “Du kannst nicht alleine leben”
- Vertrauen in Behörden
- Zusammenarbeit - Offene Schnittstellen
- Kontrolle durch Öffentlichkeit

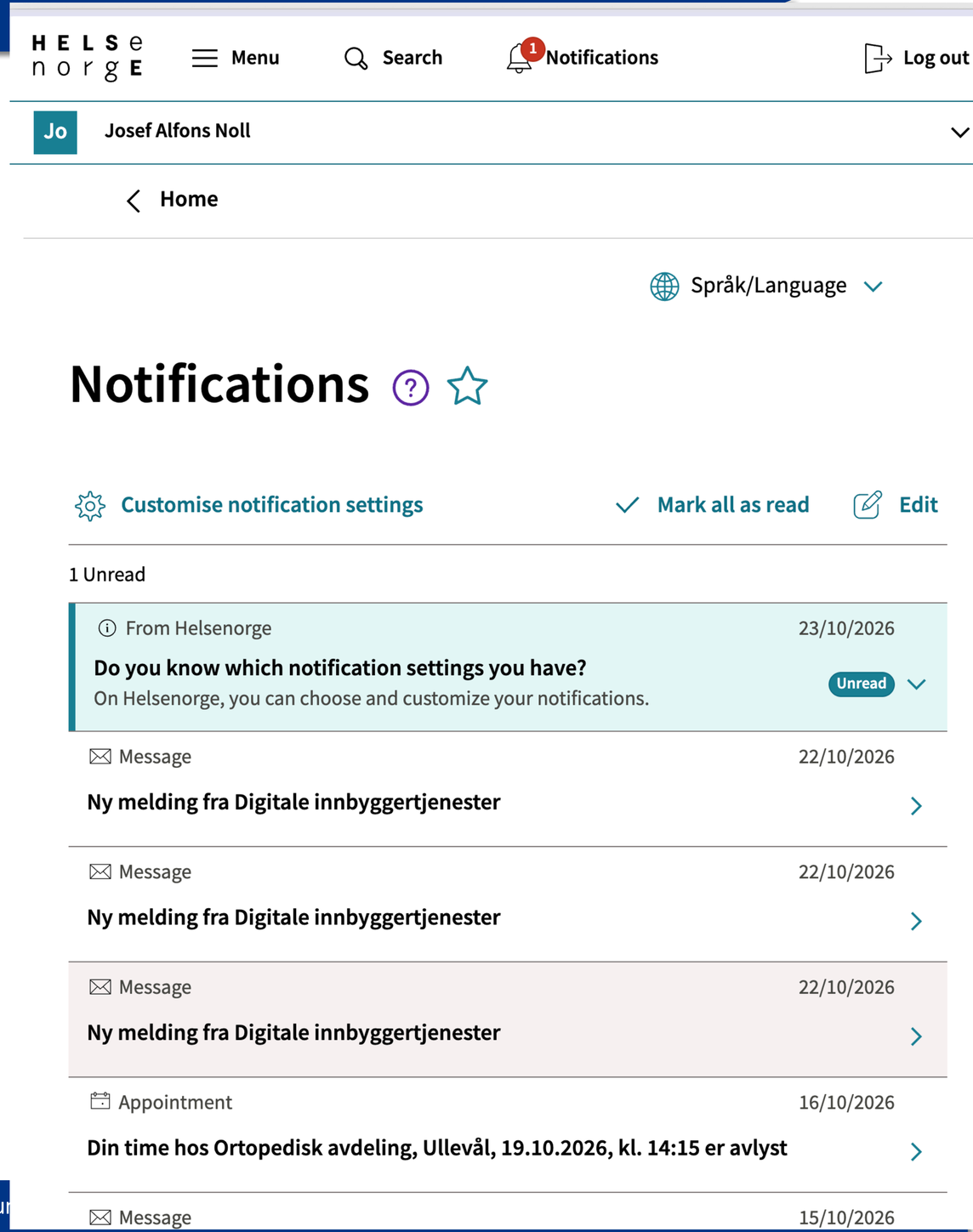
- Große Entfernungen (E6 = 2576 km)
- Teure Infrastruktur
- Hohe Arbeitskosten/hohe Effizienz



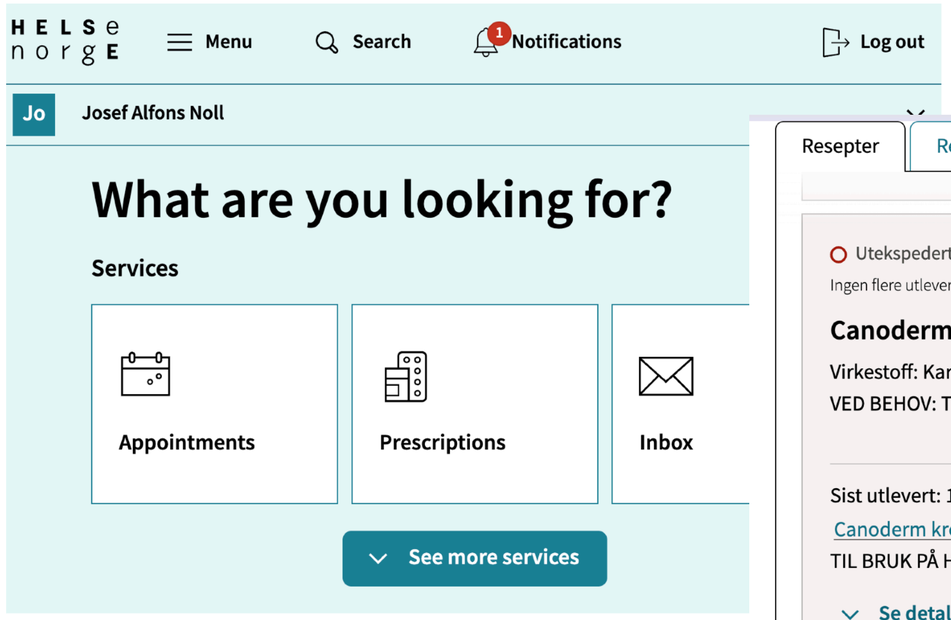
https://www.visualcapitalist.com/mapped-where-people-trust-each-other-most-by-country/

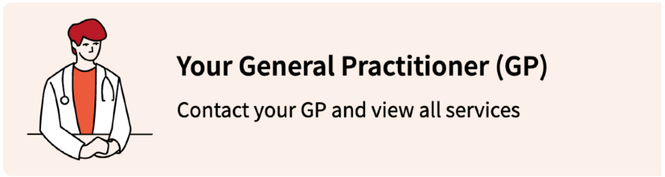
Norwegens Gesundheitssystem

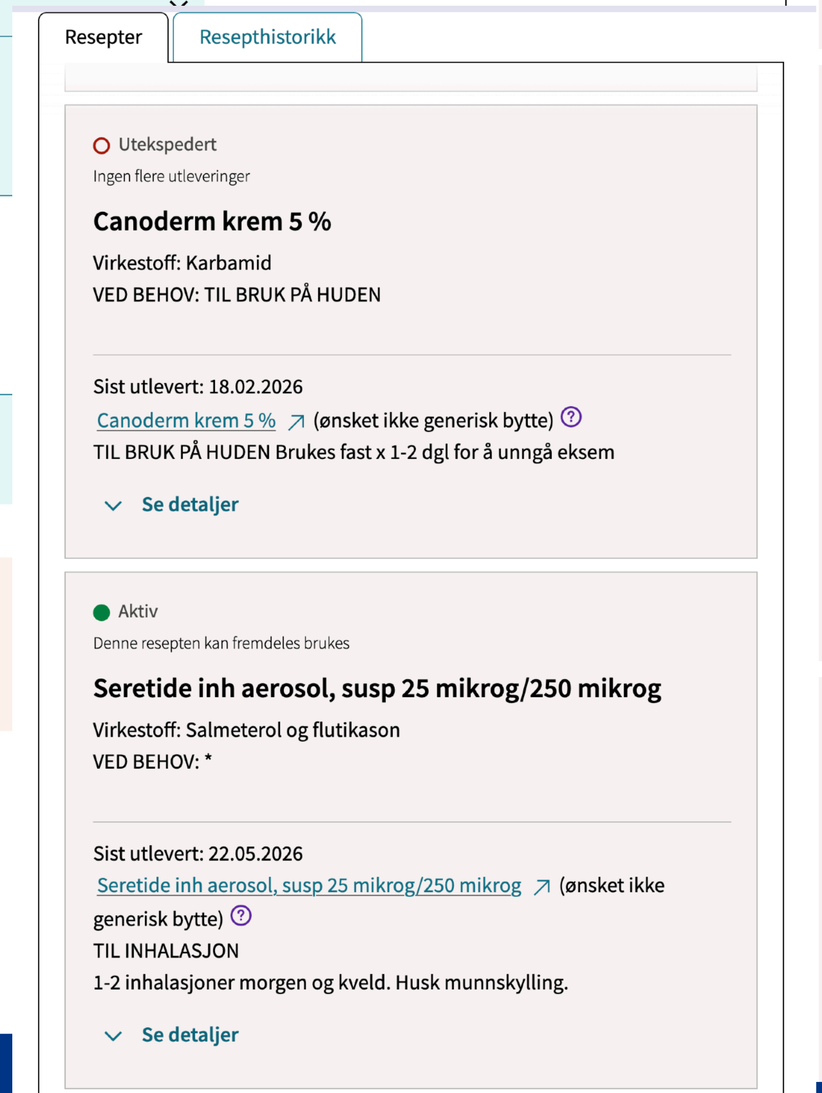
- Teil der staatlichen Leistungen
  - NO: 8-10% des BIP, ~7800 EUR/ Person
  - DE: 12,7% vom BIP, ~5300 EUR/ Person
- Eigenanteil vergleichbar
  - NO: max 300 EUR/Jahr
  - DE: Belastungsgrense 2% (1% chronisch)
- Kontrolle
  - NO: alles digital, einsehbar
  - DE: ??

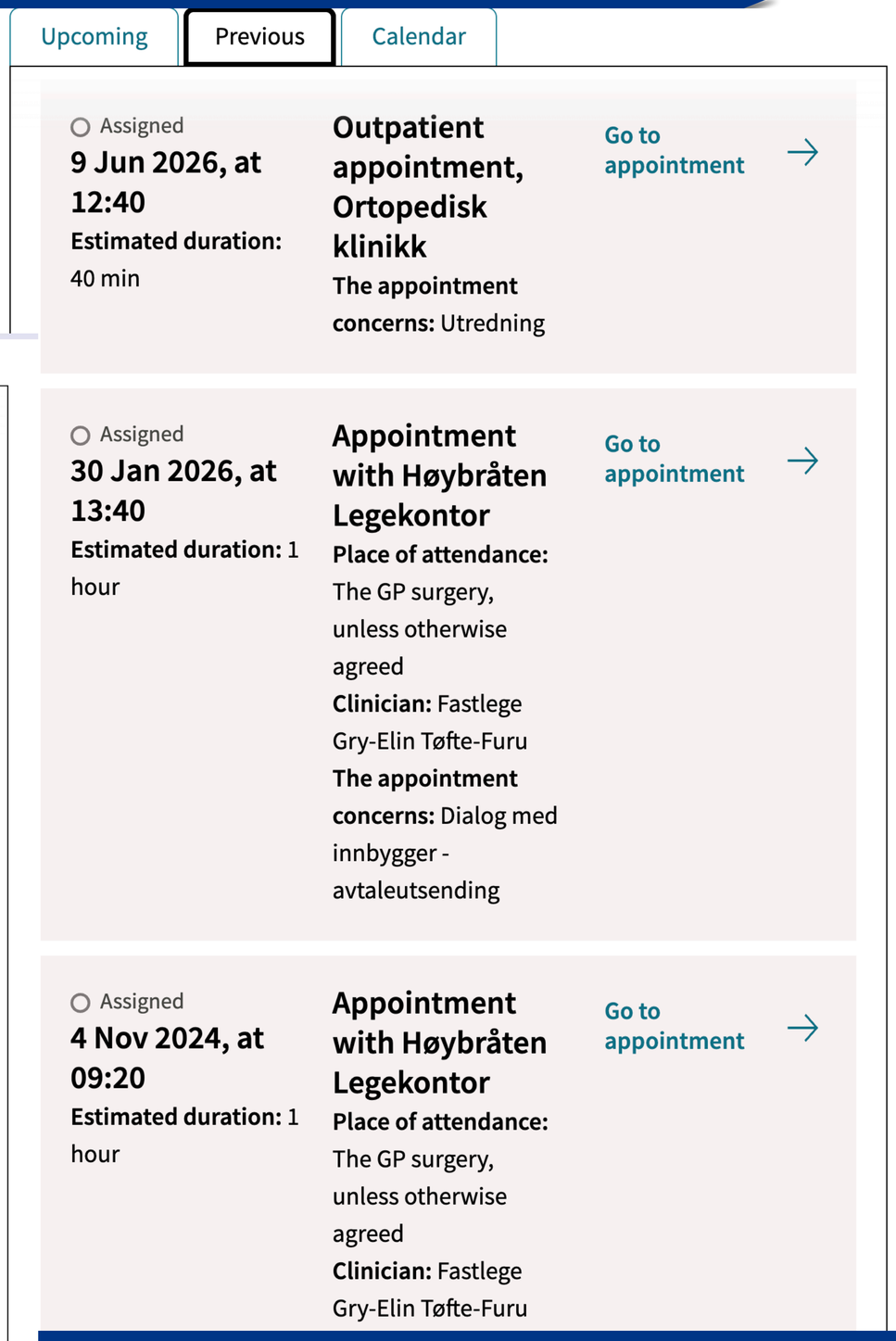


helsenorge.no - Portal/App









* Möglichkeit “kein Zugriff auf meine Rezepte”
* Kontrolle wer meine Daten angesehen hat

Von Norwegen nach Afrika

Herausforderungen in Africa

- Priorities by African people
  - 57% decent work
  - 20-30% hunger, health, peace, jobs, water, no poverty, education
  - <5% sustainability, climate, reduced inequalities, gender

- How do we build the ecosystem
  - digital as enabler
  - “who profits from Internet access today?”
  - “how to we ensure access to health, education, jobb opportunities?”



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

Challenge: Mobile Internet a

KEY FINDINGS

1. **4.8 billion people (59% of the global population) now use mobile internet on their own device – but growth in mobile internet subscribers has slowed, with low growth rates across all regions.** Approximately 160 million people began using mobile internet on their own devices in 2025, down from 190 million the year before. A further 650 million people (equivalent to 8% of the global population) use mobile internet exclusively through borrowed or shared devices.

59% own device with mobile internet > 41% not

6. **Connectivity varies significantly by and within regions and countries – 92% of the unconnected live in LMICs.** Connectivity levels vary considerably – not only between HICs and LMICs; LDCs, LLDCs and SIDS lag other LMICs substantially too. In LMICs, adults in rural areas are 28% less likely than those living in urban areas to use mobile internet, while women are 12% less likely than men to use mobile internet.

4. **In total, 38% of the world's population (3.1 billion people) live in areas covered by mobile broadband but do not use it – the usage gap.** The majority of the usage gap (70%) comprises those who do not own a device. However, the percentage of those in the usage gap who do not own a device is significantly lower when focusing on adults aged 18 and over. Only around a third of those in the adult usage gap do not own a device.

~3.1 billion people in LMIC are unconnected



source: GSMA, 2026

Was bedeutet das für den Zugang zu digitaler Gesundheitsinformation?

Establish Digital Public Infrastructure (DPI)

and apply the model of the road

Step 1:



[Source: https://www.gatesfoundation.org/ideas/digital-public-infrastructure]

Step 2:



1. Is access to digital health information a universal human right?

2. How can we enable access, especially for people and groups left behind by traditional business models?

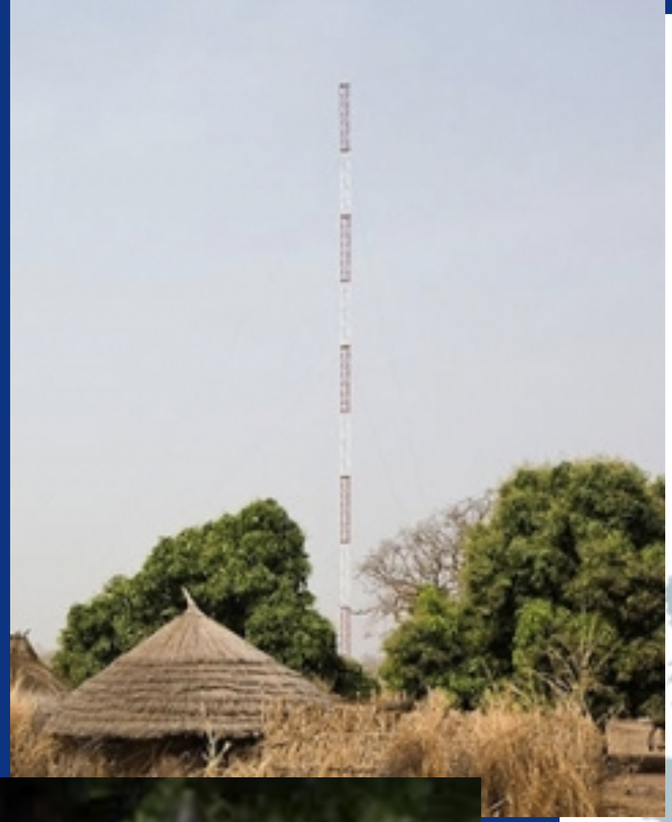




Gesundheitssystem in “Afrika”

- TZ: keine staatliche Pflichtversicherung, National Health Insurance Fund (NHIF) für öffentlich Bedienstete, optional für private (3%)
- Barbezahlung Krankenhaus
- 0,13 Ärzte pro 1000 Einwohner (DE: 4,5)

> neue Gesundheitsmodelle







Usingo Secondary School, Kenya



Afrika: Leben unter der Viruslast

- “Mücken in Europa”
  - West-Nil Fieber 157 Fälle in GR
  - Malaria, Frankfurt (2026)
  - Dengue, Chikungunya-Fieber



- Antimicrobial resistance (AMR)
  - Erkältung

- Ebola outbreak (Kongo 2026)
  - distrust to international aid
  - conflict zone
  - “our next big challenge”

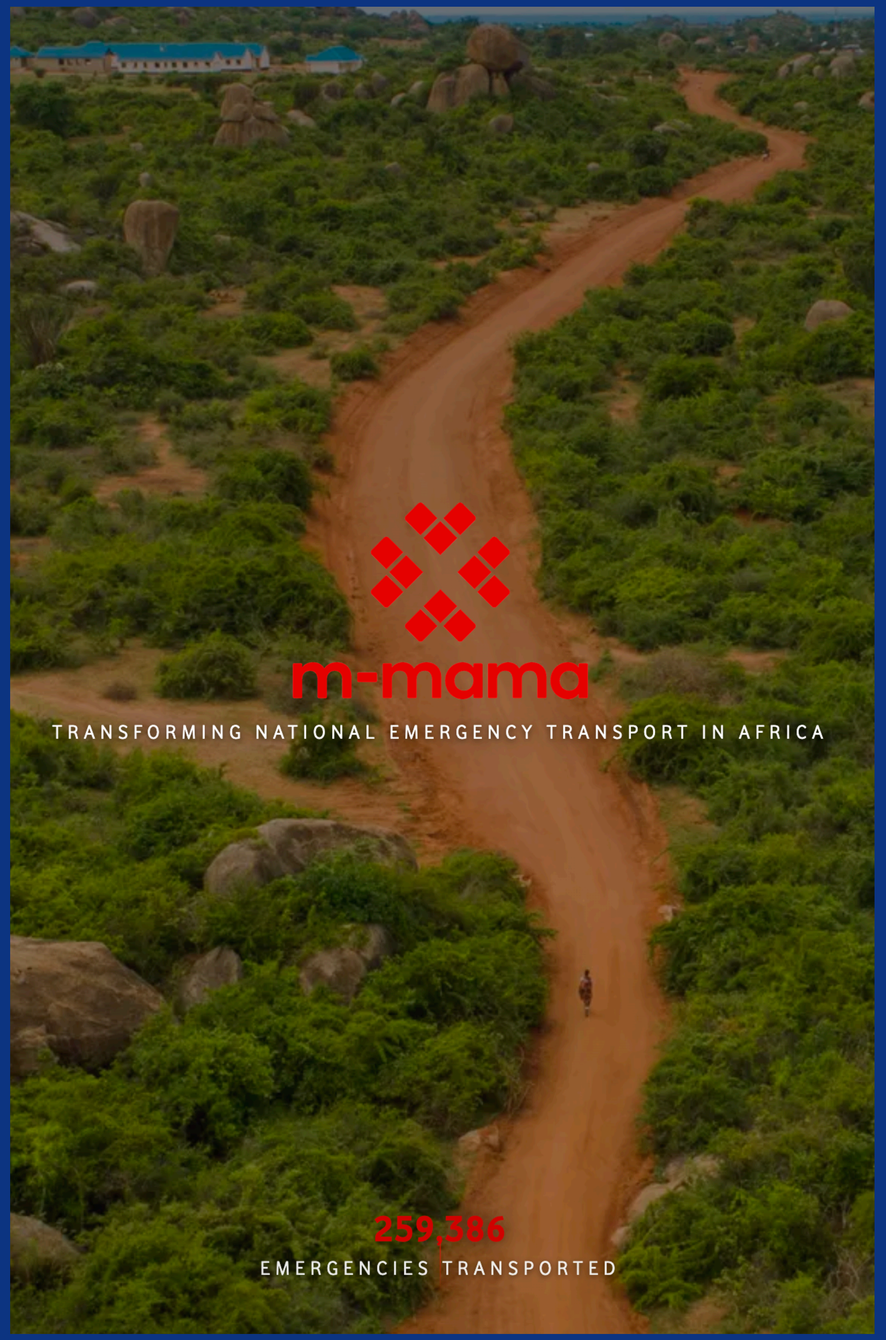
https://tropeninstitut.de/aktuelle-krankheitsmeldungen

- Covid in Afrika,
  - draussen = Sonne & Aussenluft
  - Temperaturmessung am Eingang
  - Junge Bevölkerung
  - “trained on viral attacks”



Beispiel: Müttersterblichkeit

- Transport zur Klinik
- 178 000 Mütter sterben in SSA (1 alle 3 Min)
- typisch 2 Std von postpartum Blutverlust (PPH) bis zum Tod der Mutter
- m-mama, 24/7 kostenloser nationaler Dienst:
  1) gratis call
  2) Transport zur Klinik

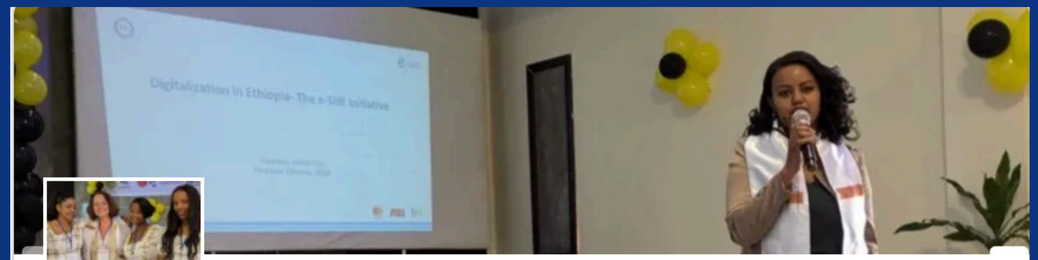


Beispiel: Krankenhausbesuch

- “unbestimmte Wartezeit”, zu wenig Ärzte
- Neues Modell: 40.000 TZS (~13,5 EUR) für Krankenschwester Besuch, Ferndiagnose, Fahrt von/zu Patient, App-basierte Unterstützung

Ethiopia - ongoing collaboration

Female Empowerment Group on LinkedIn



NURTURE Female Empowerment

Private Listed





AA4EDU & DHP4DPI.eu

Affordable Access for Education, Health and Empowerment &

Digital Health Promotion for Digital Public Infrastructure

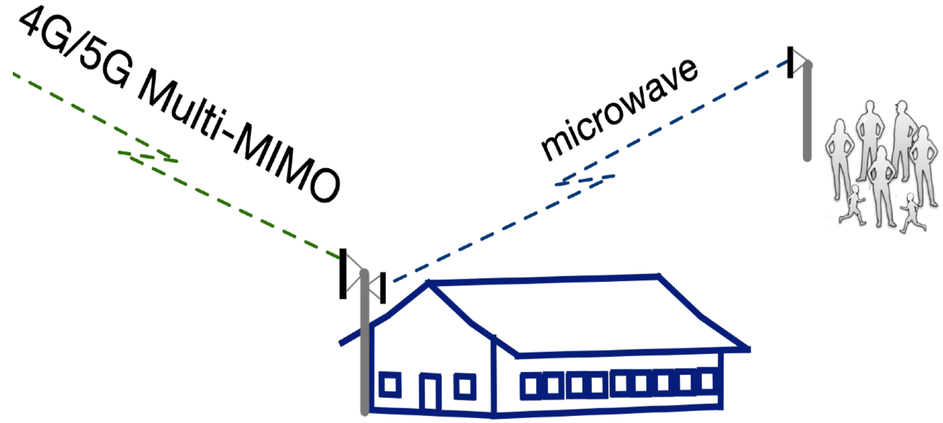
“Digital Health Promotion for Digital Public Infrastructure” DHP4DPI project

- Norwegian funded international co-operation Ethiopia - Norway
  - Jimma University, Norwegian Institute for Public Health (NIPH), UiO
  - 2026-2029, 6.25 MNOK (~550 kEUR)
- Outcome
  - Digital Health Promotion (DHP) in Ethiopia for Ethiopia
  - Digital Public Infrastructure (DPI) in rural communities
- Plans
  - Digital access through Information Spots at schools, health stations, …
  - health information at schools









Schools, Health Stations, and Community Learning & Living Labs (CL3)

Health Information as part of the Digital Public Infrastructure (DPI)











[Source: Christine Holst, UiO]

UiO : Global Health

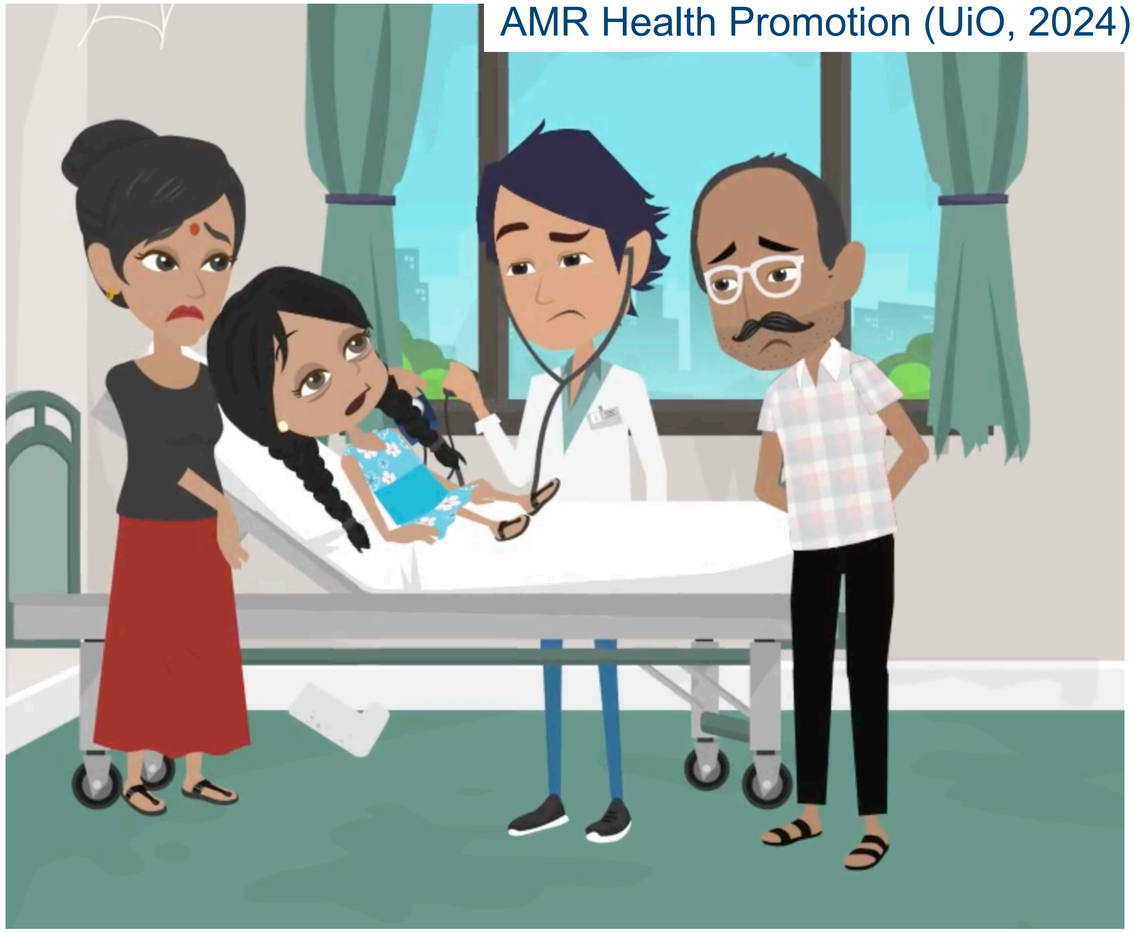
Health Promotion:
Antimicrobial resistance (AMR)

- Wrong usage:
  - too short (2-3 days)
  - every time
  - animal usage (food ad-on)

- Penicillin resistance 51% of countries
- Ciprofloxacin (Urinweginfektion)
  - Escherichia coli 8-93% resistance
  - Klebsiella pneumoniae 4-79%

- UK (2050 estimate): 10 Mio death
  - economic loss $100 trillion USD by 2050

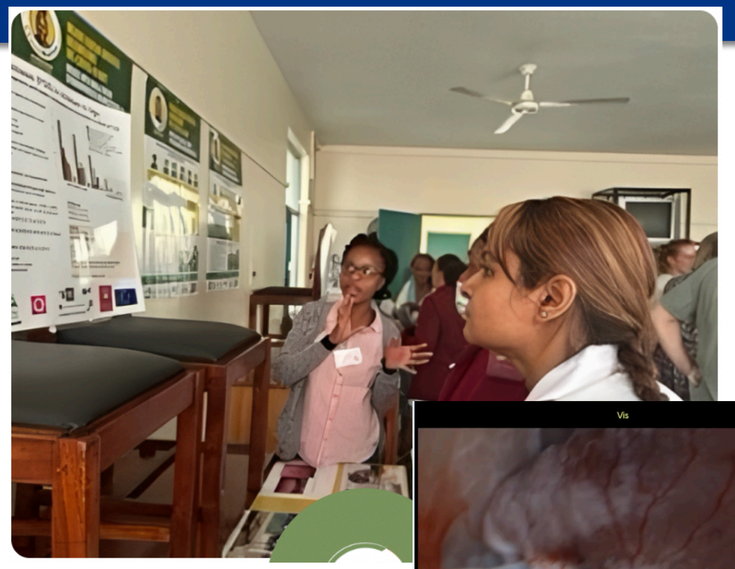
AMR Health Promotion (UiO, 2024)



https://wiki.basicinternet.org/images/f/f8/AMR_Prisha_video_v02.mp4

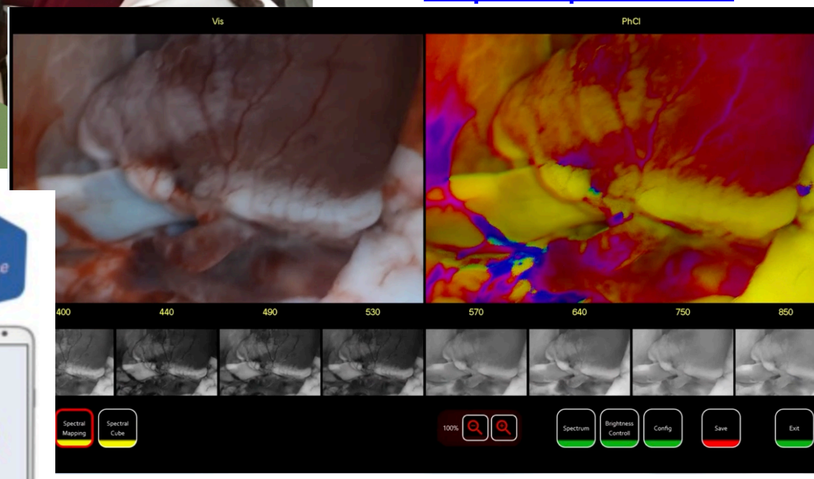
Ahmed et al., 2024, Antimicrobial resistance,…, ScienceDirect

Von Africa lernen

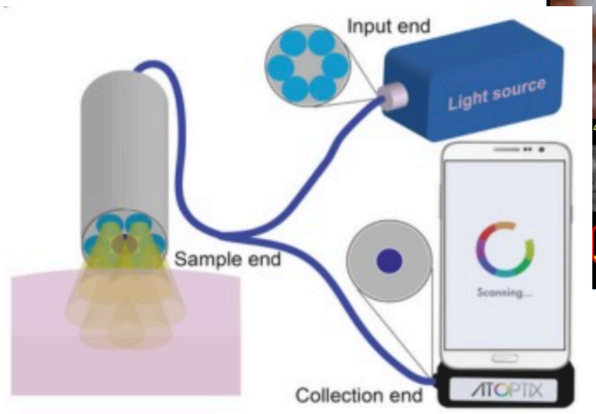


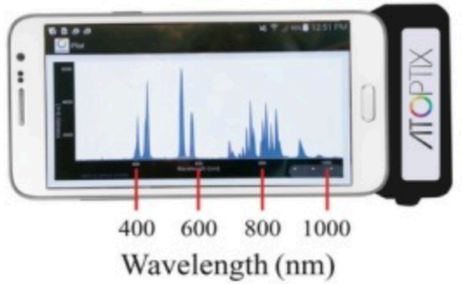
http://FGSnomore.org

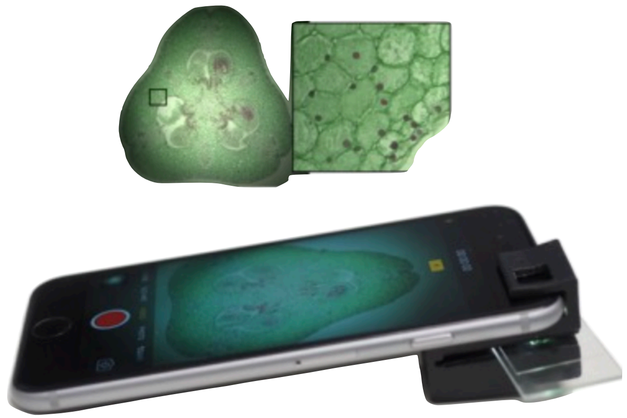
https://qcell.tech



- Ausgangspunkt: Ressourcenknappheit
- Handy ist die einzige Kommunikation
  - SMS, Phone für die Kommunikation
  - “add-on” an Mobiltelefonen
- Krankenschwestern übernehmen Aufgaben (Fern-Untersuchung)
- “Community Health Workers” & “Health Extension Programme” angelernte Frauen in den Dörfern
- KISS - keep it simple, stupid







https://pmc.ncbi.nlm.nih.gov/articles/PMC6334517/



Einladung - gemeinsam für gesicherte Gesundheitsinformation für Jeden





oder Themen vertiefen:
“Können wir ohne Afrika leben?” - “Dezentrale Strukturen”
“Wie kann KISS in Deutschland aussehen?”
“Das Modell der Strasse für den Zugang zum Internet”
“Gesundheitsinformation in Zeiten von AI”

BasicInternet.org

Supplementary slides



Our future:

The Energy Preparedness Framework: Securing Local Resilience

A systematic approach for transforming local energy vulnerabilities into validated, resilient infrastructure for municipalities and food systems, addressing compound crises through mapped dependencies and tested hubs.

PHASE 1: IDENTIFYING VULNERABILITIES & STRATEGIC PLANNING

Addressing Compound Crises



Mitigating risks from war, cyberattacks, and extreme weather that disrupt food and health.

Mapping Critical Dependencies



Identifying the vital links between energy, ICT, and essential municipal service continuity.

Local Energy & Storage Design



Planning backup capacity and battery storage for schools, sports halls, and farms.

CRITICAL SERVICE HUBS & RESILIENCE FUNCTIONS



Municipal Centres
Schools and sports halls serving as local community crisis centres.



Dairy Farm Hubs
Ensuring milking, cooling, and ventilation through on-farm renewables.



Digital Infrastructure
Mapping ICT dependencies to prevent systemic communication failures.

PHASE 2: VALIDATION, TOOLS, & SOCIETAL IMPACT

Validated Crisis-Centre Concepts



Testing schools and farms as energy-independent hubs during simulated and real outages.

Data-Driven Decision Support



Using 0.1s load data and GIS mapping to size PV-battery-biogas systems accurately.

National Scaling & Policy Impact



Establishing governance models and preparedness guidelines to reduce crisis costs and build trust.

Resilient infrastructures

