UiO : Department of Technology Systems
University of Oslo

Master Studies at ITS@UiO, focus:
- Societal Security, Trust
- Sustainable Infrastructures

Josef Noll, Toktam Ramezani, Elahe Fazeldehkordi, Maghsoud Morshedi, Hamed Arshad, Olav Owe, Pål Orten, Abul Kaosher, Torleiv Maseng, Paal Engelstad, Terje Tjelta, Lars Bråten.....

http://www.mn.uio.no/its - http://ITS-wiki.no

United Nations
Sustainable Development Goals

"Internet had the ability to dismantle the divide. Internet failed miserably, the divide is bigger than ever."
Kate Gilmore, Human Rights, UNO

Source: Akers Avis Groruddalen, 2013

Affordable Energy & Internet Lite for All
the catalysts for the goals

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

7 AFFORDABLE AND CLEAN ENERGY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS
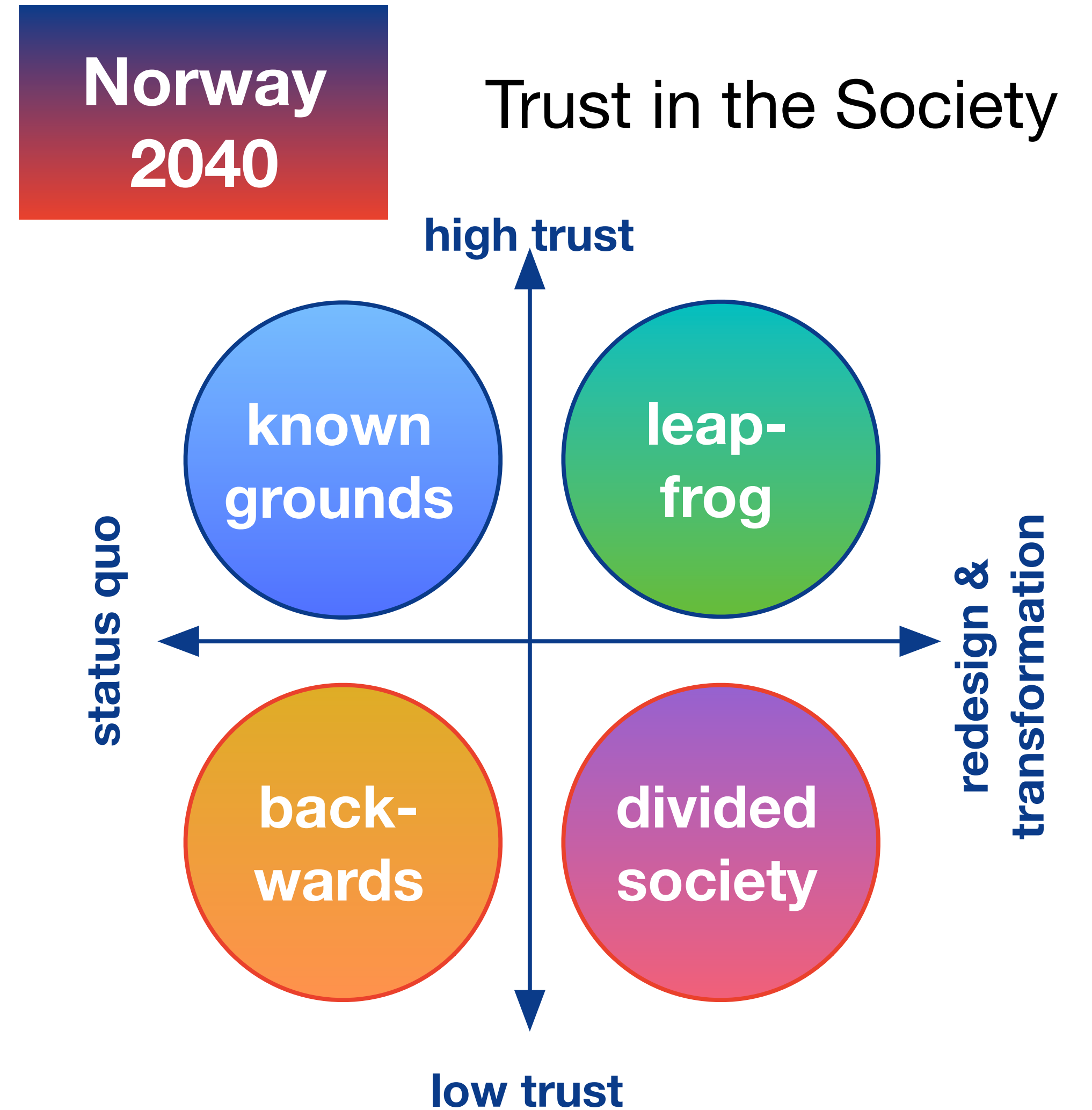
Energy & Internet Lite for All

Target 7.1&7.2   Target 9.C   Target 16.10

Topic areas for Master Thesis

- Societal Security

- Trust in Society

Marja Matinmikko-Blue: Overview of new 6G white papers

Volker Ziegler: 6G technology and architecture – unify experience across the worlds

Josef Noll: Digital inclusion and the freemium model for access to information for all

Marianne Kinnula: Megatrends shaping sustainable development of 6G

Panos Kostakos: Linking 6G and UN SDGs

Norway 2040

Trust in the Society

high trust

known grounds

leap-frog

status quo

redesign & transformation

back-wards

divided society

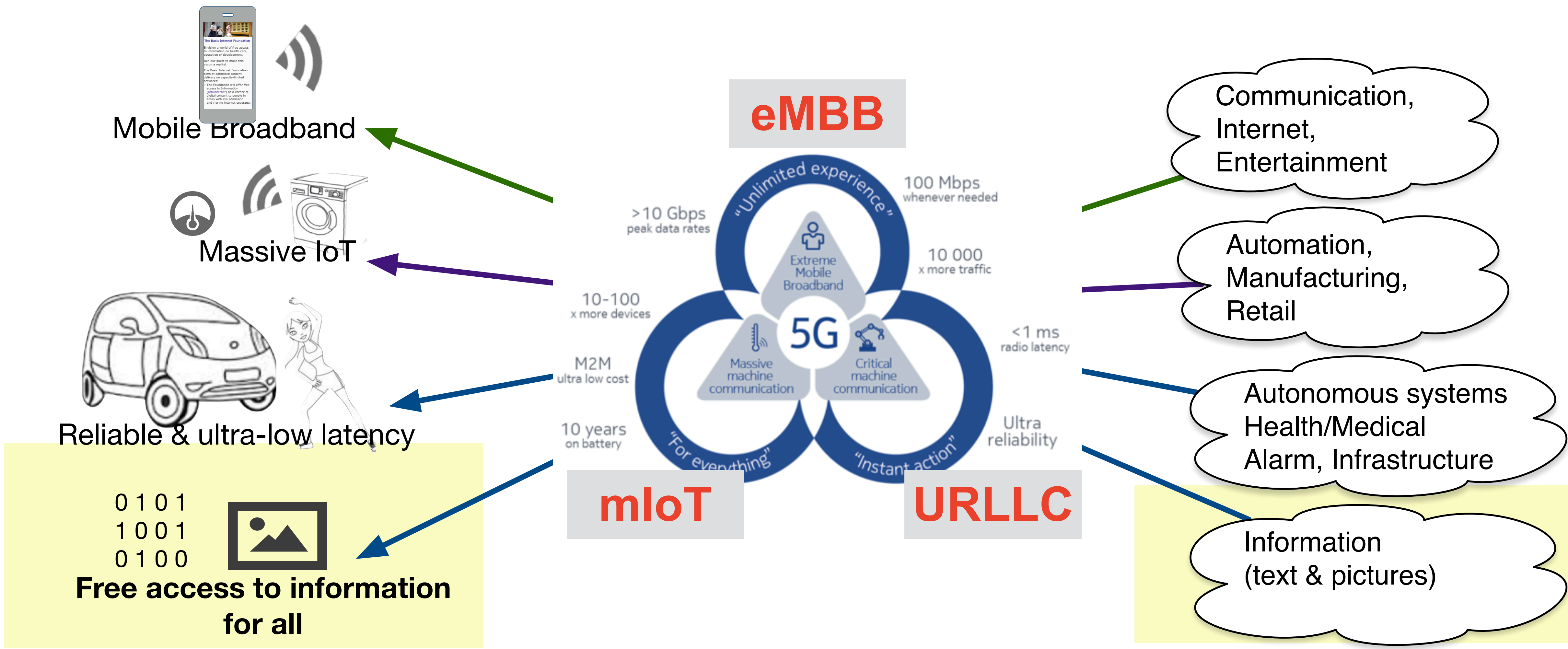low trust

Providing 6GforAll

➡ **Free access** to **Information** (Internet Lite)
- 1) Access - one **Information Spot** per village
- 2) Skills - Health, Education, Agriculture
- 3) Regulations - Freemium model
- 4) Inclusion -
  Free access for all #LeaveNoOneBehind

➡ Internet Lite & **Freemium** model for access
- **free access to National Knowledge Portal** for all
- **premium** access to **broadband**
- sustainable solution

+18 dB
>20 km

"Providing Internet to the basic of the pyramid isn't a question of affordability, but rather a question of sustainability"
Internet Governance Forum, Panel, WIN

At least one Information Spot per village

eMBB

Mobile Broadband

Massive IoT

Reliable & ultra-low latency

Free access to information for all

mIoT

URLLC

"Unlimited experience"

>10 Gbps peak data rates

100 Mbps whenever needed

Extreme Mobile Broadband

10 000 x more traffic

10-100 x more devices

5G

<1 ms radio latency

M2M ultra low cost

Massive machine communication

Critical machine communication

10 years on battery

Ultra reliability

"For everything"

"Instant action"

Communication, Internet, Entertainment

Automation, Manufacturing, Retail

Autonomous systems Health/Medical Alarm, Infrastructure

Information (text & pictures)

No magic, exist today....
Lightweight Protocols, e.g. AMP

https://basicinternet.org/internet-lite-to-the-migoli-high-school/

https://basicinternet.org/internet-lite-to-the-migoli-high-school/?amp

Full Web experience

Internet Lite - AMP experience

Basic Internet Foundation

MISSION   PROJECTS   ABOUT   PARTNERS   MEDIA

INTERNET LITE TO THE MIGOLI HIGH SCHOOL
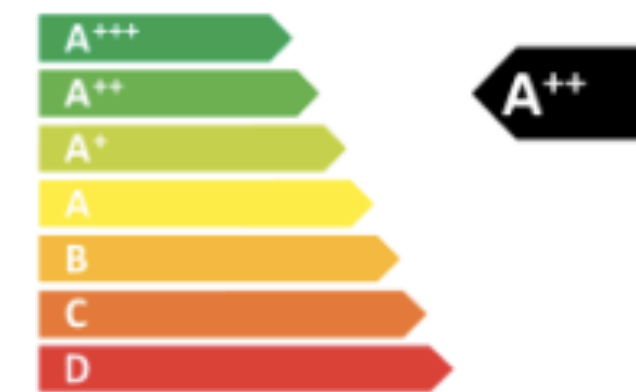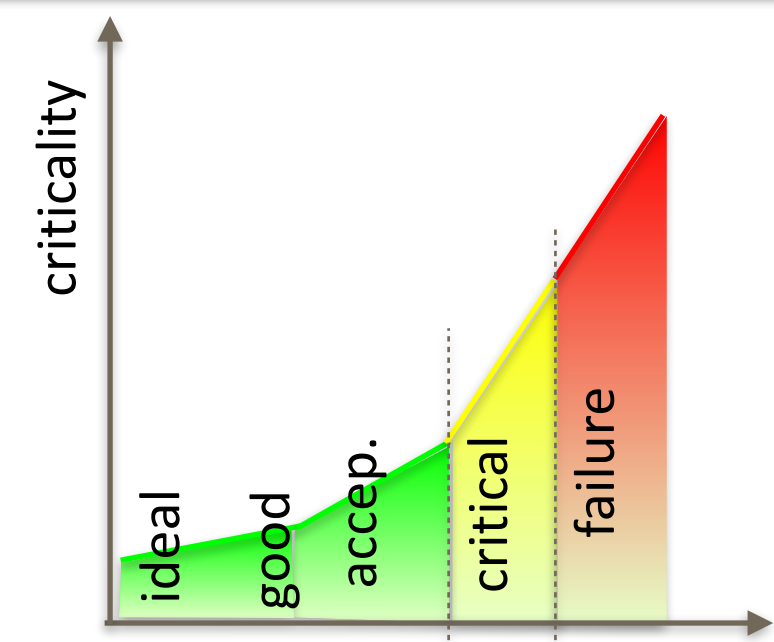
By josef | 4 May 2019 | Uncategorized

The Migoli High School has 1271 pupils (Apr2019) and 35 full-time teachers. The high school is located about 3 km outside of Migoli in the Iringa district in Tanzania.

Migoli (Nyerere High School)

Basic Internet Foundation

Internet Lite to the Migoli High School
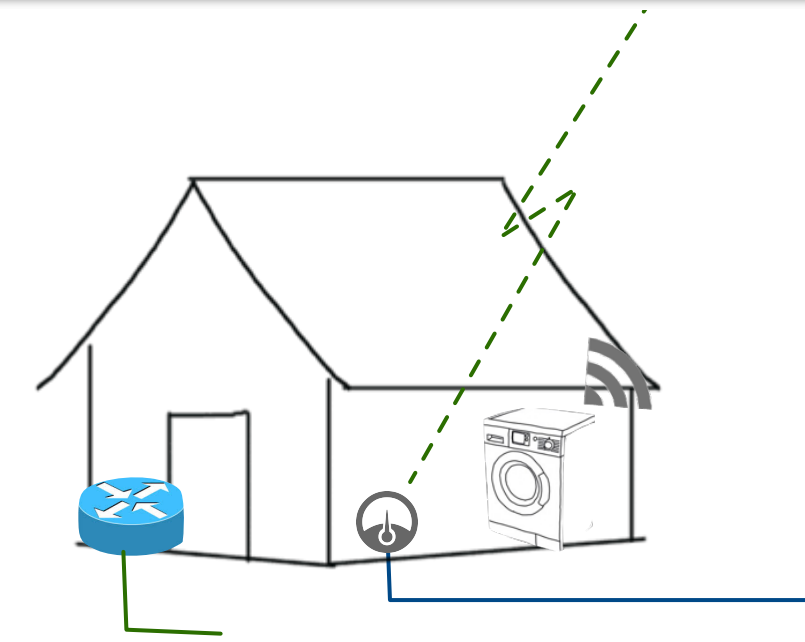
josef

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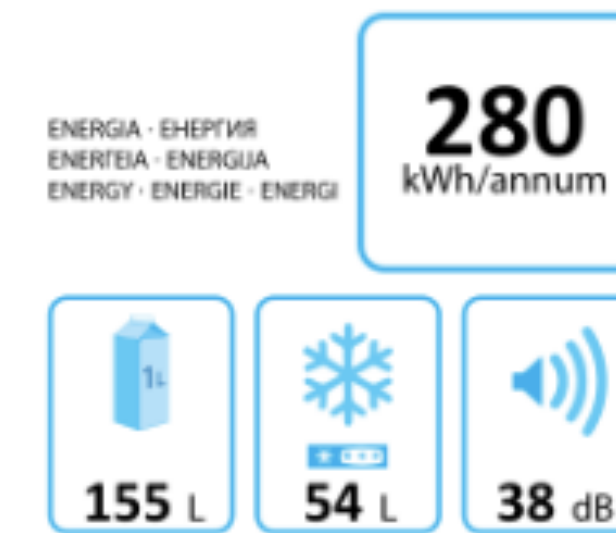
Migoli (Nyerere High School)

1271 pupils, 34 full-time teachers

Conclusions

- Things (IoT) are driving the digital societies
- Two main areas for a Master Thesis
  - Security and Privacy in IoT
    - IoTSec.no, Privacy Label
  - Smart Energy transition
    - trust in the society
  - Digitisation of the Society
    - 4 Billion without Internet
- Sustainability and Digital Inclusion
  - UNO Sustainable Development Goals (SDG 2030)
    - Free access to basic information: Internet Lite

SPD level	SPD vs SPD$_{Goal}$
(67,61,47)	(🔴,🟡,🟢)
(67,61,47)	(🔴,🟡,🟡)
(31,33,63)	(🔴,🟡,🟡)

Recommended courses

- TEK5370 - Grid, Smart Grid and IoT
- TEK5110 - Building Mobile and Wireless Networks, from 2021: Monitoring and Controlling of Communication Networks
- TEK5530 - Measurable Security for the Internet of Things

and more on security

- TEK5520 - Information Security in industrial Sensor and Mobile Systems