

Internet for All

Summer Term 2020

Prof. Jörg Ott

Ljubica Kärkkäinen

Nitinder Mohan

Chair of Connected Mobility



Sharing & Communication Through The Ages



1 Cave Paintings
France, 30,000 BC
Who doesn't love a cave painting? Created to communicate, themes included animals and symbols for early man.



2 Pictograms
China & Egypt, 5,000 BC
Pictograms and ideograms represented a concept, object or activity, and led to Egyptian hieroglyphs and Chinese characters.



3 Carrier Pigeons
Greece, 776 BC
OK, pigeons are disease-ridden, but they're great with directions, and rather load bearing, according to the Ancient Greeks.



4 First Postal Service
Persia, 550 BC
Persian King Cyrus the Great created the first Postal Service – which hardly doubled as data and tax gathering as well.



5 The Marathon Man
Greece, 530 BC
Ancient Greek Pheidippides ran 150 miles in two days (with no trainers!) to announce the Greek victory over Persia. Alright for some!



6 Heliographs
Rome, 37 AD
Roman Emperor Tiberius sent coded orders daily by heliograph to the mainland from his island, Capri. Alright for some!



7 Paper
China, 105 AD
Tsai Lun of China took the inner bark of a mulberry tree, added water, pounded it a lot – and voila, paper was invented!



8 Town Crier/Bellman
The UK, 1540 AD
What did Town Criers tell the illiterate masses? Royal proclamations, local bylaws and – of course – local business adverts.



9 Daily Newspaper
Germany, 1650 AD
The first daily was the "Enkommende Zeitung" published in Leipzig, 1650. The first English daily was the daily Courant, 1702.



10 Morse Code
The USA, 1835 AD
American Samuel Morse invents Morse code, a series of on/off clicks, tones or lights. Great (and disastrous) for the navy!



11 Telephone
The USA, 1876 AD
Scottish engineer Alexander Graham Bell patents the electric telephone. No camera or apps, but exciting nonetheless!



12 First Transatlantic Signal
Cornwall to Newfoundland, 1892 AD
Italian inventor Guglielmo Marconi transmits the first radio signal to travel the Atlantic Ocean. Finally, something to point our sofas towards!



13 1st TV Broadcast
Great Britain, 1927 AD
Scottish inventor John Logie Baird transmits the first television signal. Finally, something to point our sofas towards!



14 ARPANET Launched
The USA, 1969 AD
The Advanced Research Projects Agency Network was the precursor network to what we now know as the global Internet.



15 WWW
USA, 1994 AD
American government releases control of the Internet and the world wide web is born – hello light speed news and online shopping!



16 AIM
USA, 1997 AD
AOL pioneered Internet chat with AIM (AOL Instant Messenger) in 1997. Now we could all safely talk to total strangers!



17 Blogging
USA, 1999 AD
Everyone gets a voice – the launch of Blogger.com and LiveJournal in 1999 led to a blogging explosion across the Internet.



18 Facebook
USA, 2004 AD
Bored Harvard student Mark Zuckerberg created Facebook. Today it has an estimated 850 million users. Like?



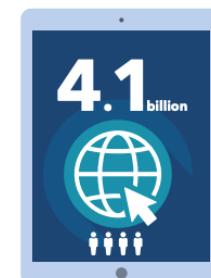
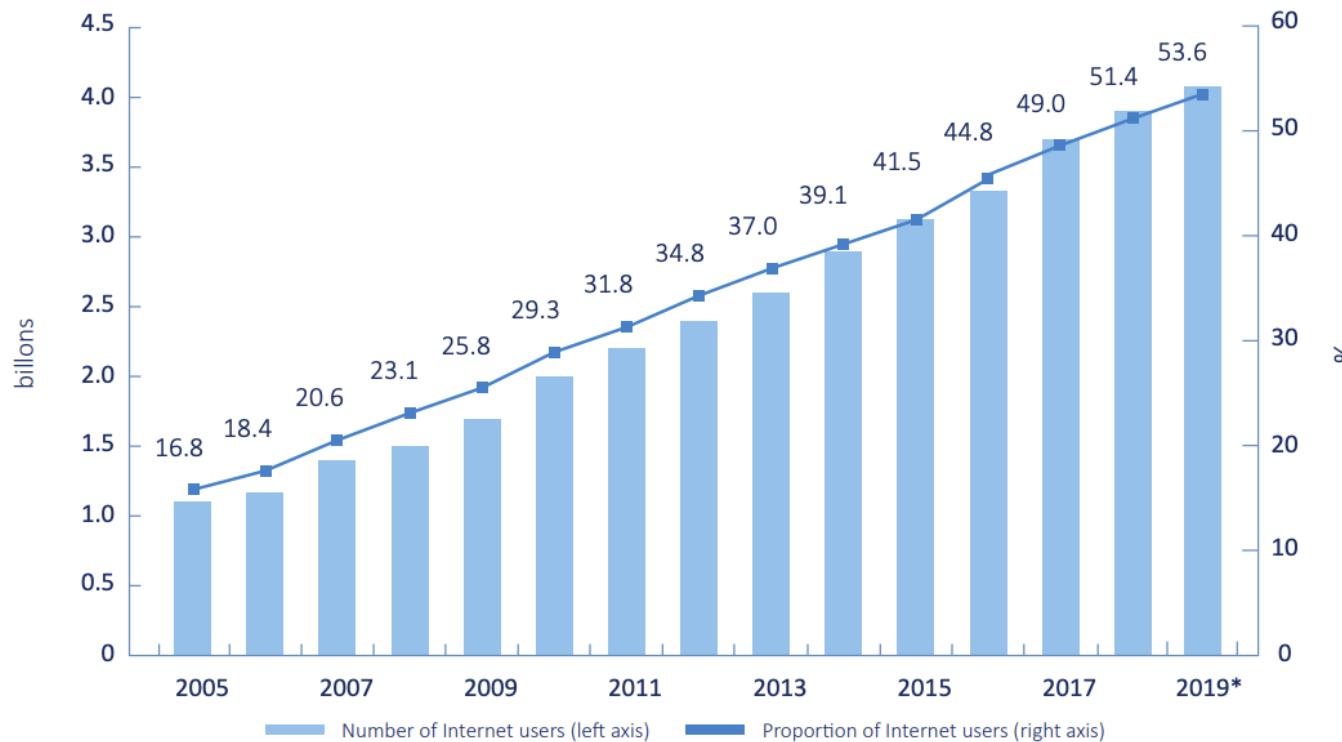
19 YouTube
USA, 2005 AD
YouTube broke ground in user-generated content, with users uploading videos across the Internet. Totally viral, right?



20 Twitter
USA, 2006 AD
What can you really say in 140 characters? A lot, according to Twitter's 350m+ users – it's a micro-blogging masterclass.

Internet usage keeps growing, but barriers lie ahead

*Individuals using the Internet, 2005-2019**



An estimated 4.1 billion people are using the Internet in 2019, reflecting a 5.3 per cent increase compared with 2018.

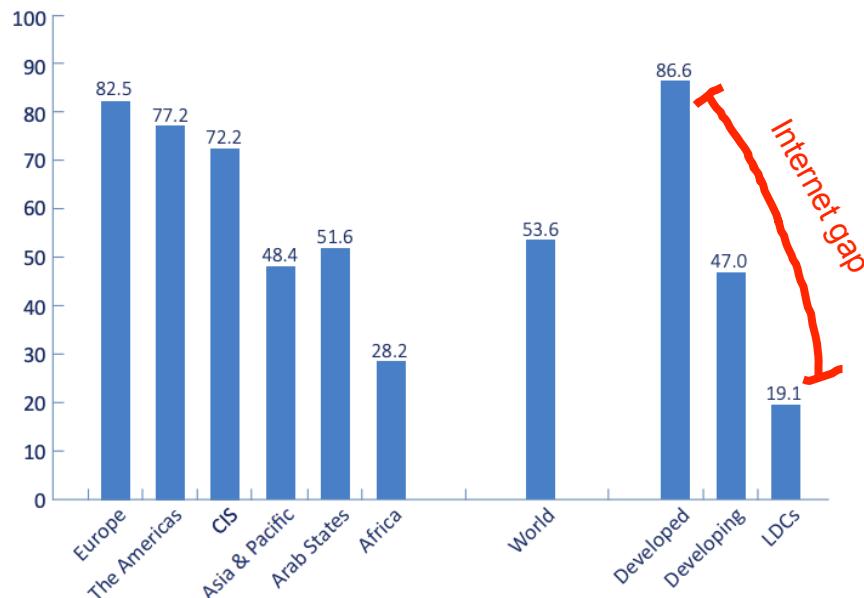


10%

Between 2005 and 2019, the number of Internet users grew on average by 10 per cent every year.

Note: * ITU estimate. Source: ITU.

*Percentage of individuals using the Internet, by region and development status, 2019**

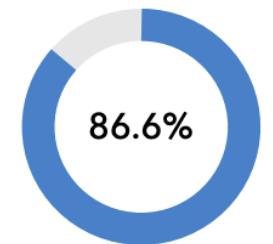


Note: * ITU estimate. Source: ITU.

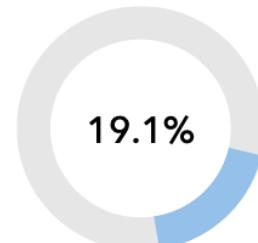
In developed countries, most people are online, with close to 87 per cent of individuals using the Internet.

In the least developed countries (LDCs), on the other hand, only 19 per cent of individuals are online in 2019.

Europe is the region with the highest Internet usage rates, Africa the region with the lowest Internet usage rates.



Developed Countries



19.1%

LDCs

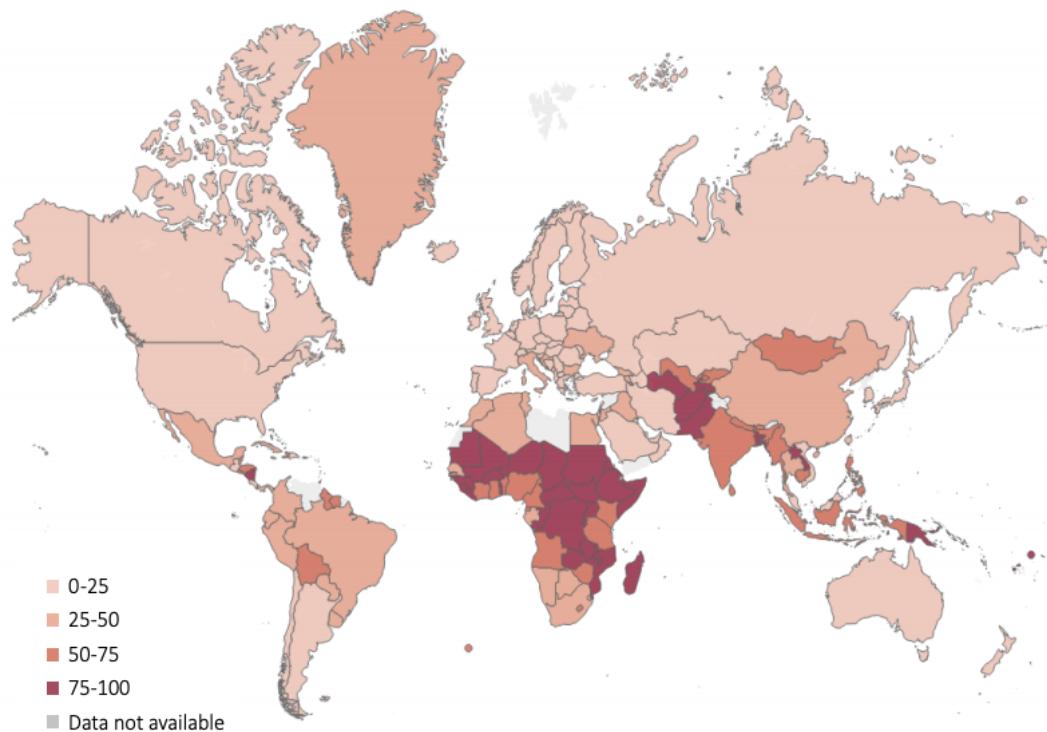


Africa

Europe

Most of the offline population lives in least developed countries!

*Percentage of the population not using the Internet, 2019**



The map of the offline population highlights regional differences in Internet usage.

Countries with the highest proportions of people not using the Internet are mostly in Africa and South Asia, although there are inter-regional differences.



Note: * ITU estimate. Source: ITU.

The Internet Gap

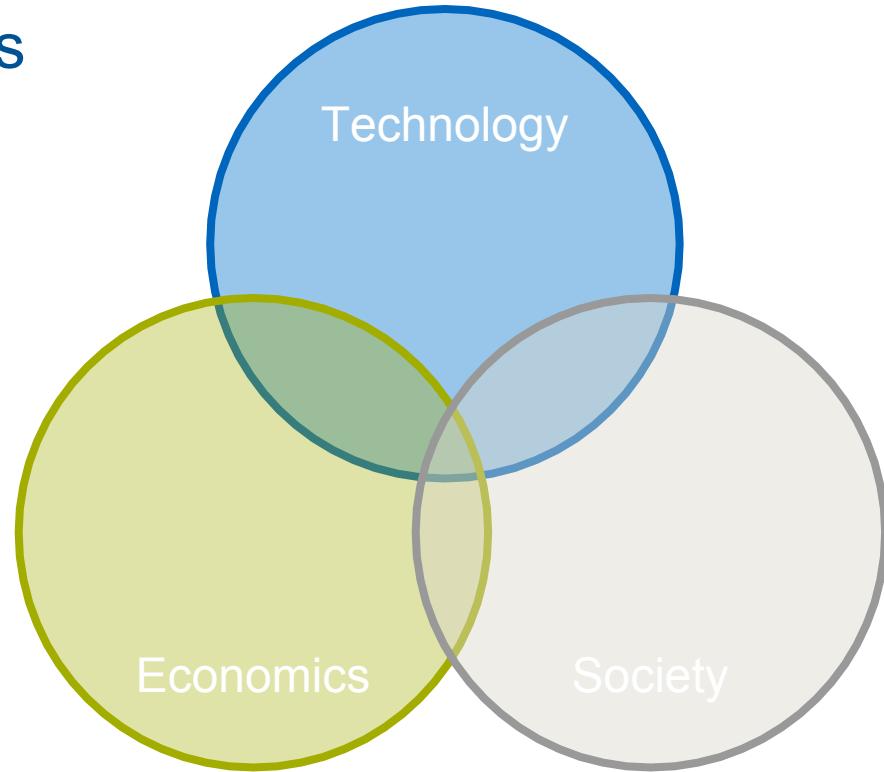
- Globally **4.1 billion** people are using the Internet.
 - **2 billion** in developing countries
- For every user in the developed world there are two in the developing world.
- **4 billion** people from developing world are offline.
 - 2/3 of the population of the developing countries.
- Around 20% of the 940 million people living in the least developed countries are online.

What causes the gap?

How can we bridge the gap?

Challenges

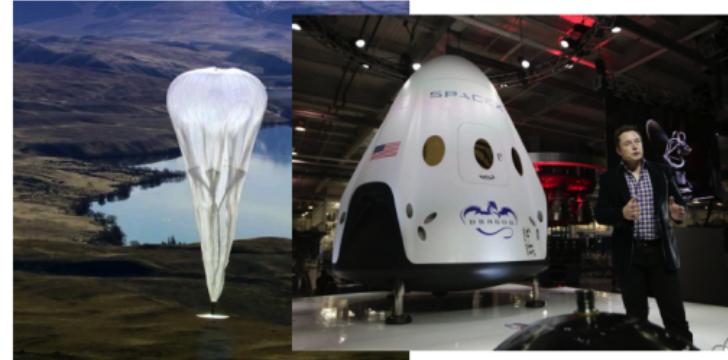
Solutions



Meta Theme: Infrastructure



Solutions



MONSTER PROJECTS

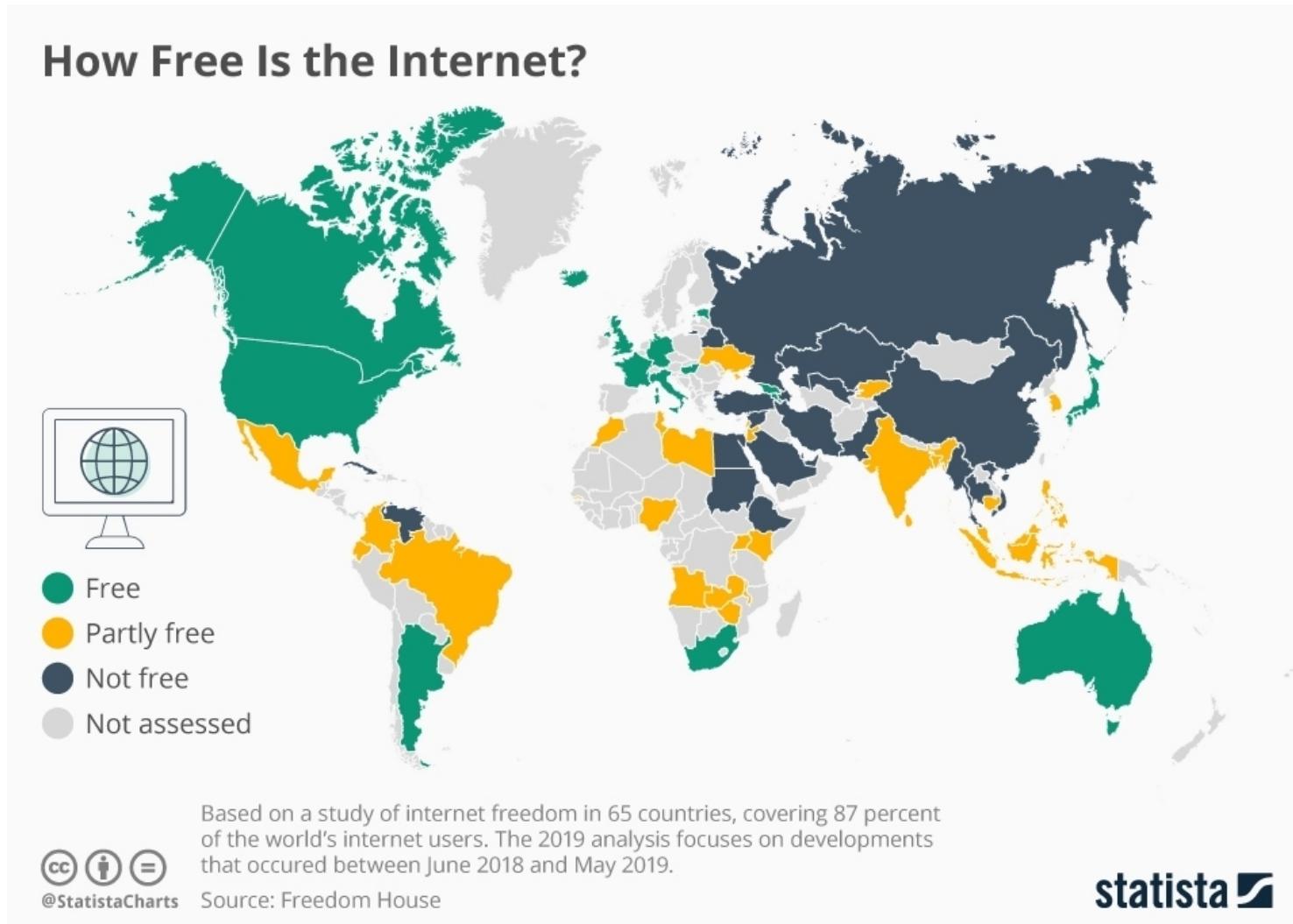
COMMUNITY NETWORKS



INNOVATIVE ISPs

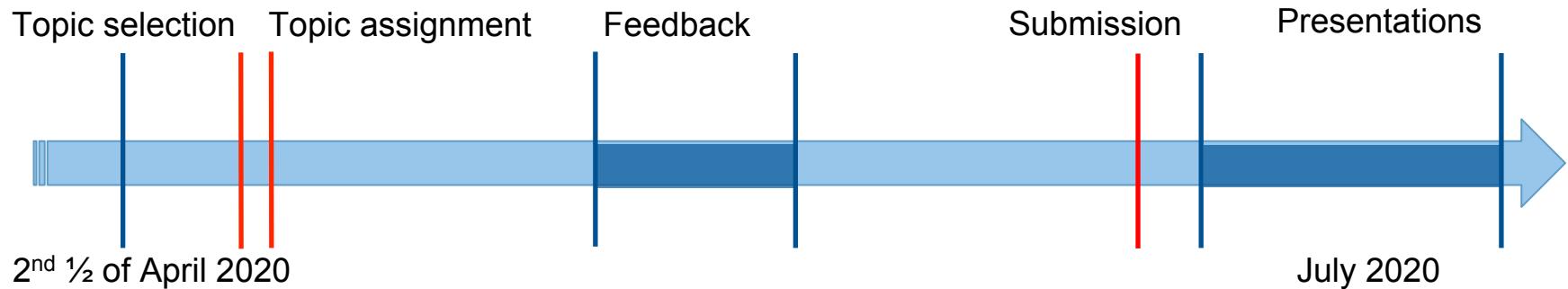


Meta Theme: Censorship



Organization

Seminar Outline & Expectations



- **Choice**
 - Pick topic: 3 topics in order of preference email to course admins
 - Topic assignment: via mail and in Moodle
 - Opponent assignment: at the same time
- **Preparation**
 - Skim the papers and pick 3 – 4 for inclusion
 - Find additional resources (1 – 2 papers)
 - Check for relevant (recent) news articles or blogs
 - Synthesize your findings

Seminar Outline & Expectations (2)

- Feedback round
 - Short presentation on your material and the line of synthesis
 - Pick a unique time slot on a Doodle poll
- Final
 - Write-up: 6 – 8 pages double column format (10 – 11pt)
 - Deadline: end of June/beginning of July 2020
 - We will forward this to your “opponent”
 - Presentation with slides: 30min (max)
 - Participation in the discussion
 - Read one other student’s paper and prepare questions
 - Presentations: end of June/beginning of July 2020

Topics

Topics

1. Networking in remote areas
2. Localized networking
3. Education aspects
4. Economics and society
5. Censorship
6. Bridging the digital divide