

Convergence between Wireless and Wirelined Telecom – is Wireless Taking over? What are the potential risks and opportunities for rural communities and islands?

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Main Theme (1)

- Why bother about the IT infrastructure?
- Who cares whether it will be made by
 1. Copper cables,
 2. Fibers to the home (FTTH),
 3. WiMAX (IEEE 802.16x)
 4. Mobile phone networks?
 5. DECT + WiFi (IEEE 802.11x)
 6. ...

Main Theme (2)

- Why not leave the IT-infrastructure issue to the market forces?
- Can't they fix all the problems by
 - Wireline where 'appropriate'
 - 3.5G (HSPA or 'Turbo 3G') where 'appropriate'
 - WiMAX
 - 4G (LTE) in the not too distant future

Why play naive activists?

(Dr. Yunus at the Roskilde Festival 2009)

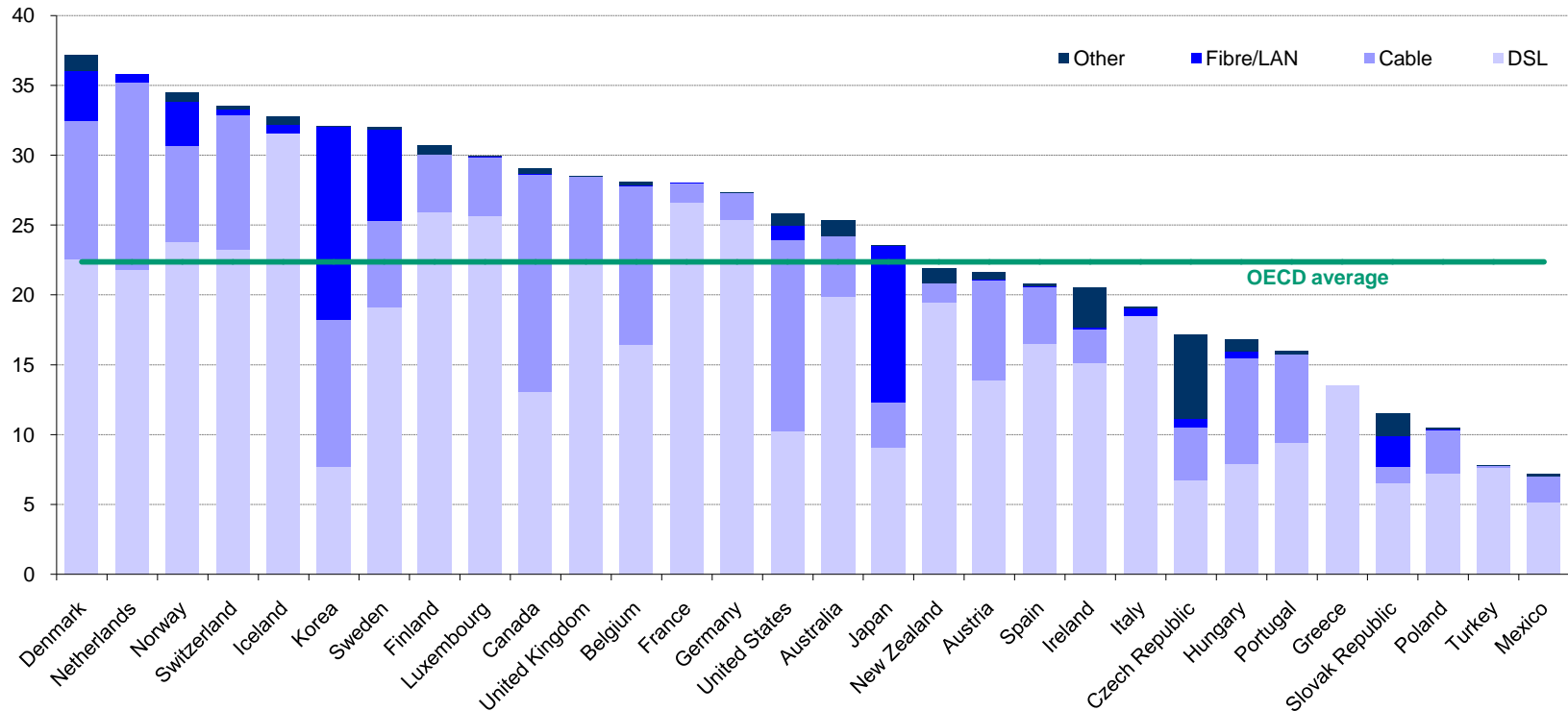


The result of market forces

- Again and again history has shown that left to market forces alone, major infrastructure facilities will only be installed in, around and between the major cities
 - Railways
 - Highways
 - Bridges
 - Telephones (wired or wireless)
 - Energy systems

The present situation within the OECD

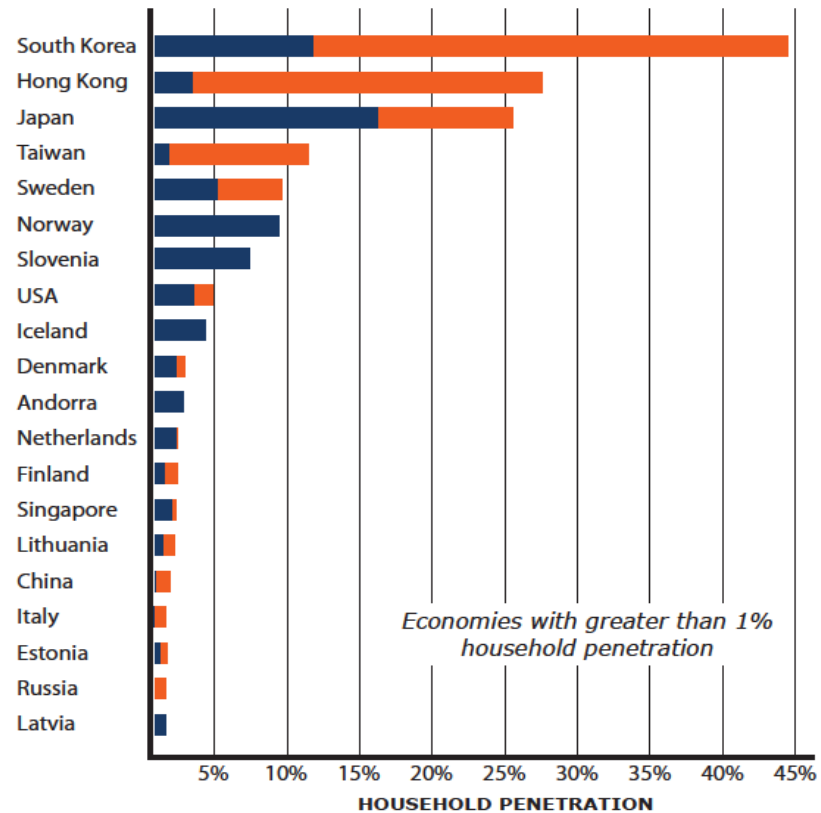
OECD Broadband subscribers per 100 inhabitants, by technology, December 2008



Source: OECD

Fiber penetration – Febr. 09

**Economies with the Highest Penetration of
Fiber-to-the-Home / Building+LAN**



Year-End 2008 Ranking

Source: Fiber-to-the-Home Council
Feb 09



(blue) Fiber-to-the-Home Subscribers



(orange) Fiber-to-the-Building + LAN subscribers

The results emphasize

- Don't forget: Broadband is defined by the OECD as a wirelined connection with 256+ kbit/s
- Within the rich world the *digital divide* is not dead!
- Still serious problems of Internet access in rural areas – of all places also in the USA.

Obamania and Internet access (1)

- A lot of hype about broadband access to rural America in the election campaign
- The problem has been recognized and major initiatives were previously launched in Massachusetts and California (with active support by Arnold S. himself!)
- American Recovery and Reinvestment Act (ARRA) \$7.2 bn

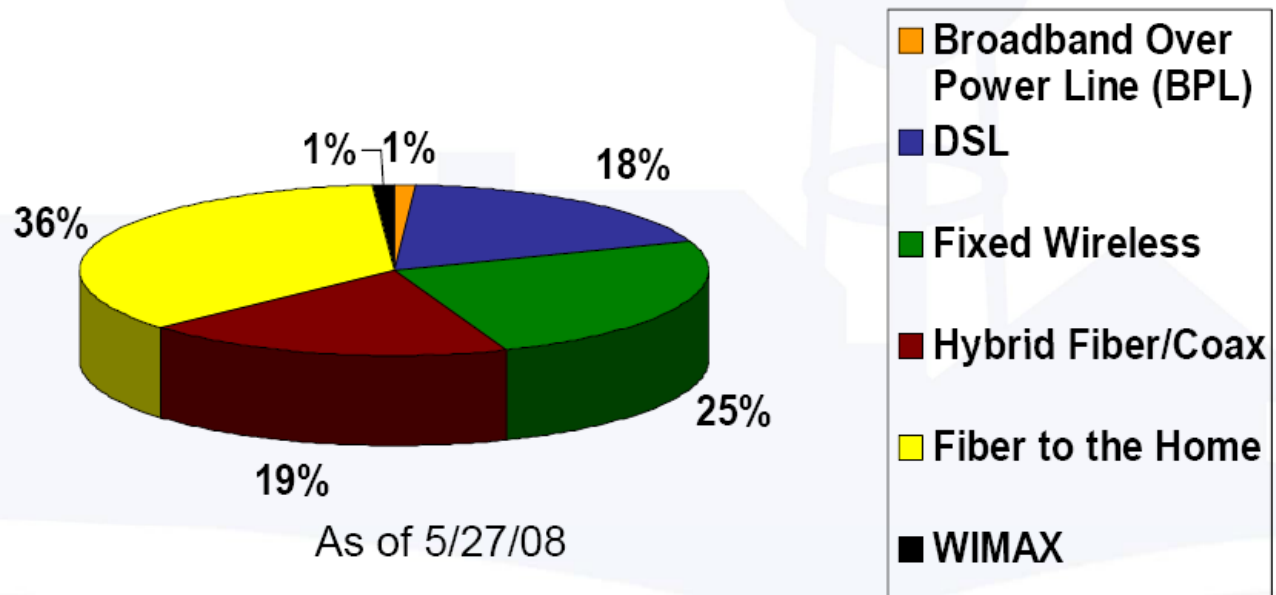
Obamania and Internet access (2)

- The Recovery Act provided a total of **\$7.2 billion** to the Commerce Department's National Telecommunications and Information Administration (**NTIA**) and the U.S. Department of Agriculture's Rural Utilities Service (**RUS**) to accelerate broadband deployment in areas of the country that have been without the high-speed infrastructure. Of that funding, **NTIA will utilize \$4.7 billion to deploy broadband infrastructure in un-served and underserved areas in the United States**, expand public computer center capacity and encourage sustainable adoption of broadband service. **RUS will invest \$2.5 billion** to facilitate broadband deployment in rural communities.

Rural Utilities Services (RUS): previous scheme

The Broadband Loan Program

Types of Technologies Funded



Obamania and Internet access (3)

- Fair to conclude:
 - NTIS/RUS documents consciousness of the importance of the digital divide problem within the US
 - NTIS/RUS not a huge program (\$7.2 bn)
 - It is not a fiber-to-the-home program
 - A large amount of smaller players are active
 - The large players at standby right now
 - 'Broadband' defined as 786 kbit/s (upload 200)

The telecom system of innovation: major actors

- Telecom operators
 - wirelined /wireless (AT&T, Verizon, T-Mobile, Telefonica, NTT DoCoMo)
 - Only wireless (Vodafone, China Mobile)
- Cable TV operators (Comcast, AOL)
- Telecom equipment vendors
 - wirelined (Ericsson, NSN, Huawei, Alcatel-Lucent)
 - Wireless (Ericsson, NSN, Huawei, Alcatel-Lucent, Samsung)
 - specialist IP and optical equipment (Cisco, Juniper, 3Com)
- Regulators/governments (ITU, IETF, IEEE, ETSI, FCC)
- Semiconductor and computer industry (Intel, Microsoft, HP, IBM, Apple)

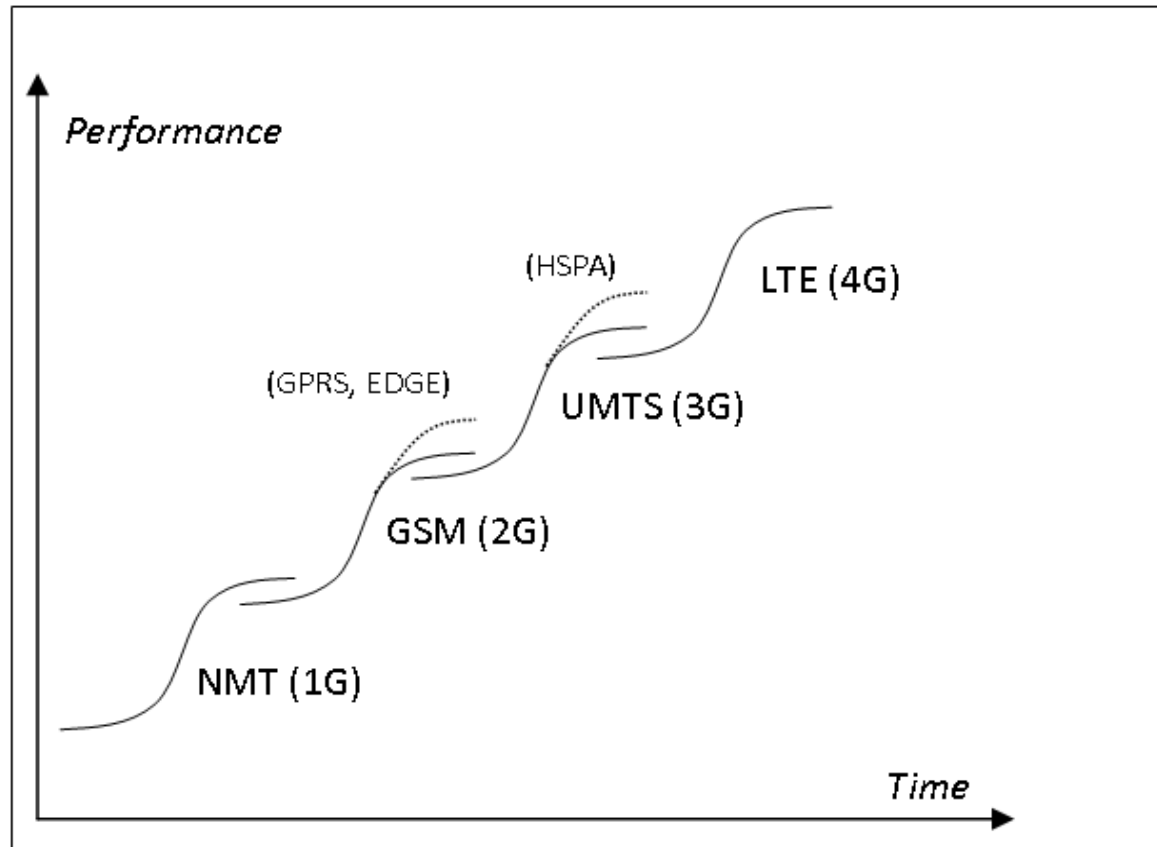
Interaction between players

- Who will determine the outcome?
- If there are no deliberate policies backed by strong regulators and government bodies, the outcome appear to be determined mainly by the operators
- Probably Japan, Korea and China are exceptions from the general pattern of no clearcut governmental ICT infrastructure policies

Yet another wireless hype: 4G?

- A ‘linear’ extension of the present 3G concept? **YES**
- The major wireless operators have decided on the W-CDMA based LTE (FDD) as their 4G platform.
- China Mobile is heavily involved in LTE as the 4G platform, but with the TDD variant.
- LTE-FDD and LTE-TDD will be able to communicate somehow ‘seamless’

Technological life cycles – Mobile Technology. The “Nordic-EU track”



If the ICT-infrastructure is left unregulated to the telecom operators – i.e the ‘market’?

- The geographical periphery will probably be the loser without an adequate ICT infrastructure for a modern society
- The geographical centers may loose, at least partly, as well (congestion problems of 3G/4G)
- The emerging ‘turbo 3G’ hype will not solve the fundamental infrastructural problems
- ...but may get the role of a ‘miracle drug’.