



Mobile communication services's need for frequencies

Karl-Heinz Laudan

Deutsche Telekom AG, Spectrum Policy

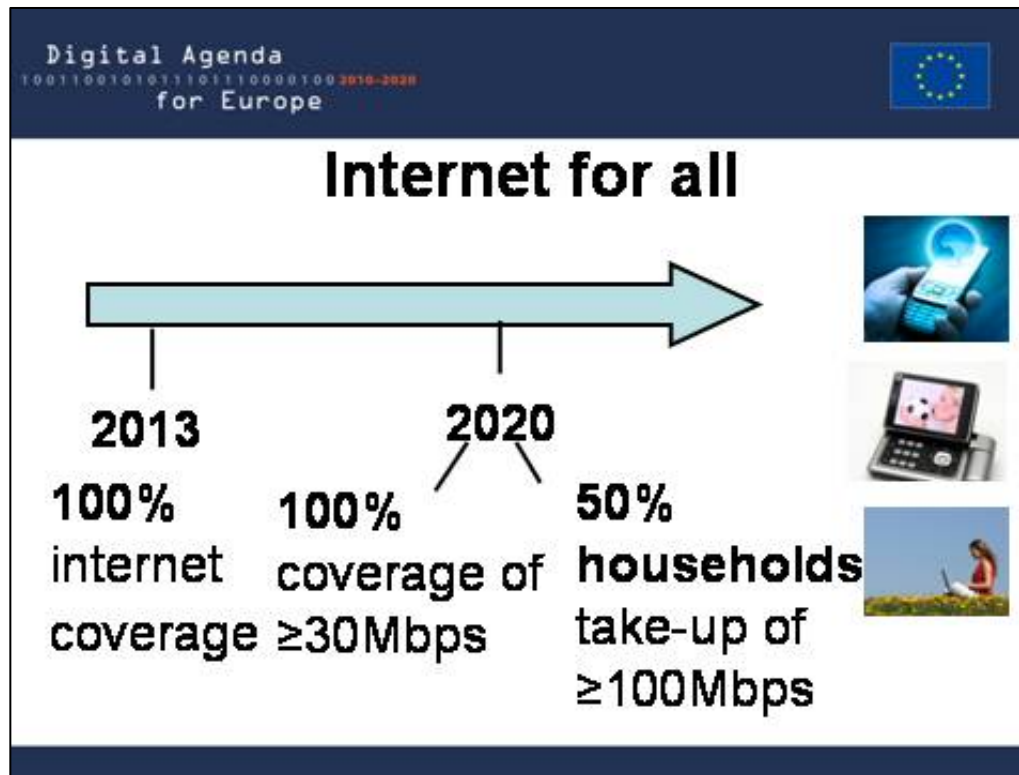
Workshop of the Institute of European Media Law

Brussels, 25 September 2012

Life is for sharing.



European Digital Agenda: Ambitious targets to provide broadband access for all in Europe



N. Kroes: “Every European Digital”



Broadband for everyone everywhere !

Overcoming the „Digital Divide“ is a prerequisite to keep Europe competitive

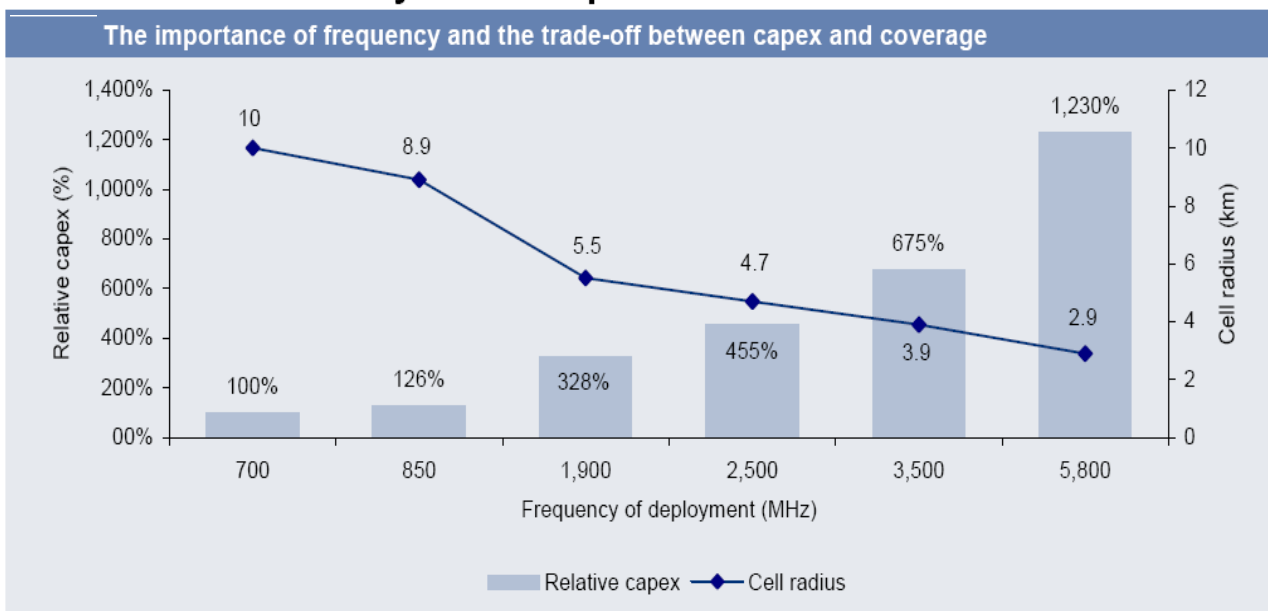
- The European Commission defined ambitious targets to provide broadband access to all people in the European Union.
- Mobile networks play an important role by providing quick and economical viable solutions for reasonable costs.
- For achieving the overall target the European Commission was deeply involved in both the political and regulatory decision making process.
- A number of European governments support the European digitalisation plan by defining national “Broadband initiatives” (e.g. Germany).
- The early implementation in Germany became a role model for Europe.



Everywhere? – Economical viable only with mobile in the right spectrum bands

Roll-out costs Mobile

Why lower frequencies are better



Note: Capex comparison as a function of deployment spectrum in a suburban environment

Source: Intel analysis

- Rural areas are characterized by a low pop. density requiring larger cell radius for efficient coverage.
- Propagation rate of the signal depends on the frequency and determines the roll-out costs.



Questions to be answered on the way to LTE800

Protection of Broadcast Service and secondary users (e.g. PMSE)

- Coordination method of BNetzA for protection of Broadcast Service for every single LTE800 station.
- Obligation for the operators for preventive protection of Broadcast Service
- Agreement with BNetzA on interference management.
- Establishment of processes for information exchange with all users of wireless microphones in coordination with their organisations, e.g. APWPT.
- Cooperation with PMSE vendors.

Actual status (as of August 2012)

Just 5 cases of interference to DVB-T , no interference to cable networks (DVB-C) ,
21 interference complaints from users of wireless microphones

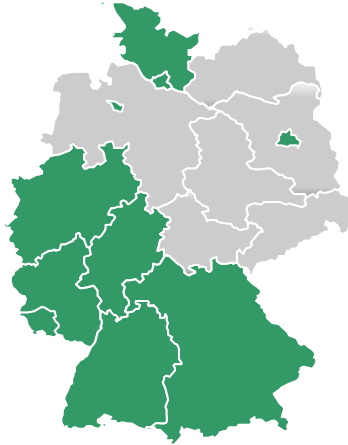


Successful implementation of LTE in “Digital Dividend I” spectrum

Fastest rollout of a new technology ever



September 2011



December 2011



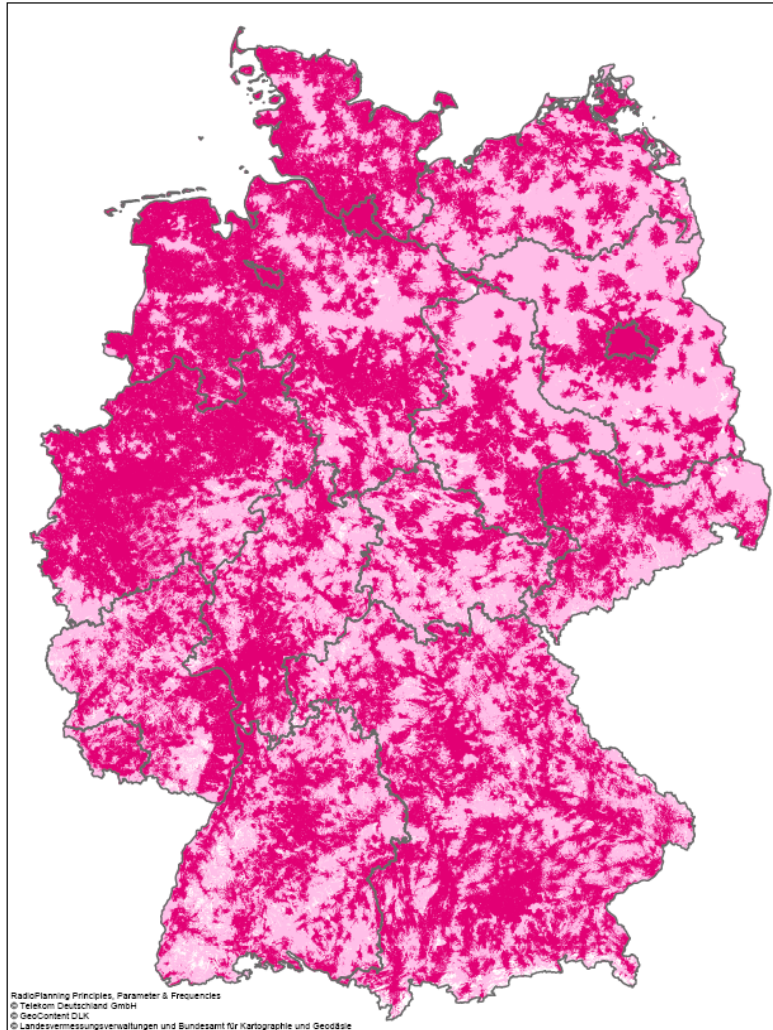
June 2012

- Dedicated coverage obligations for the band 790 – 862 MHz (LTE800) in Germany.
- Priority zone model to cover broadband gaps first; Target: 50% Pop coverage until January 1, 2016.
- Existing broadband coverage counts (fixed or competitors).
- Coverage of all competitors is considered.

Within 14 month the LTE800 coverage obligations have been fulfilled in 14 Federal states. LTE800 contributes an important part for the Broadband coverage in Germany.



High speed-data network based on current spectrum resources



In rural areas LTE800

Today: nation wide coverage GSM/EDGE...

- voice and data with rates up to 260 kBit/s*

In the future: LTE800 in addition

- data rates up to 75 MBit/s*
- nation wide coverage

In urban areas HSPA+ and LTE1800/2600

Today: UMTS/HSPA+ in urban areas...

- data rates up to 42 MBit/s*
- more than 80% pop coverage

In the future: HSPA+ and LTE1800/2600 in addition

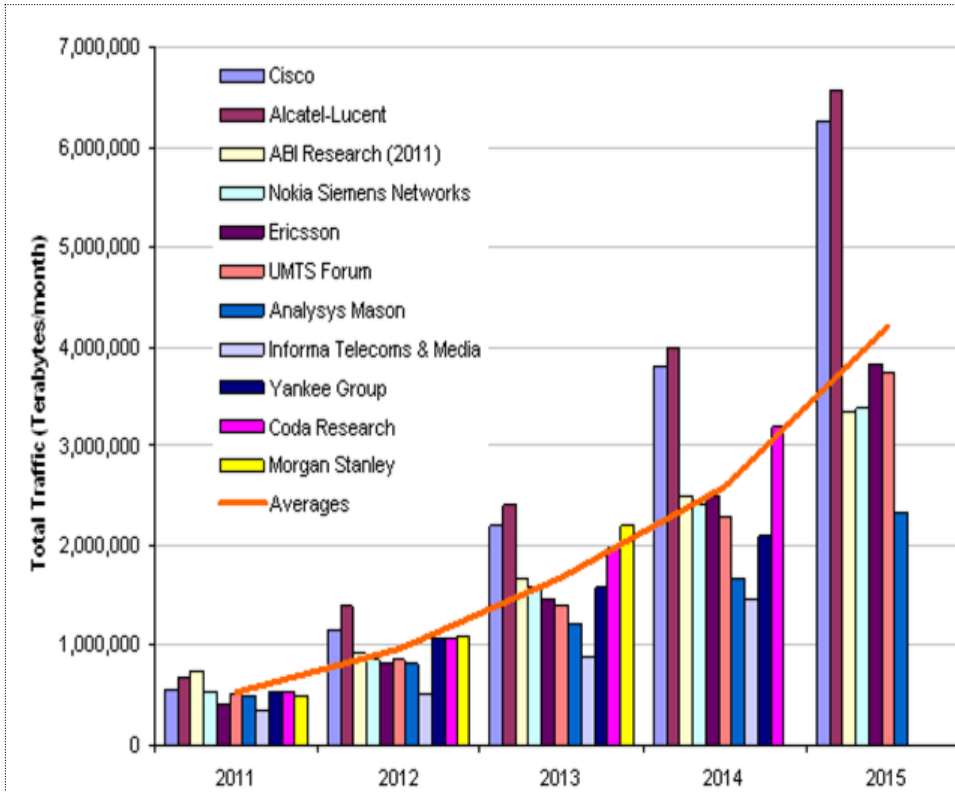
- data rates up to 42 MBit/s* (HSPA+) downlink up to 100 MBit/s* (LTE).
- more than 80% pop coverage

Current network capacity resources are sufficient on mid term. But increasing data traffic will enforce intensified effort to keep up quality of service.

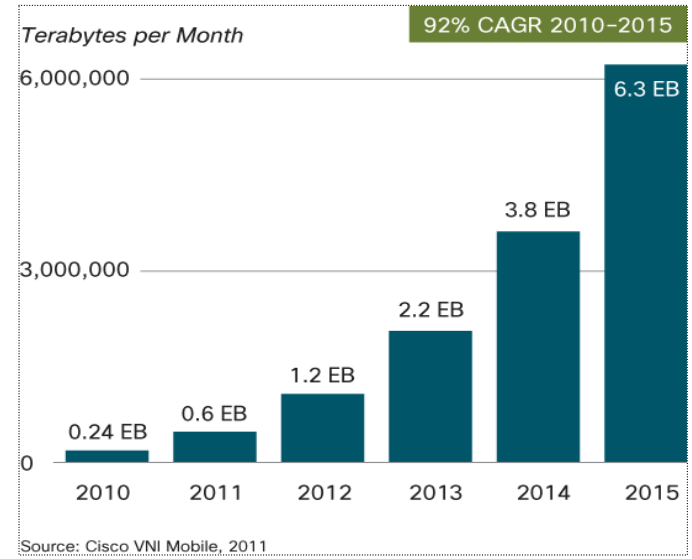


*The typical user data rate depends on the local conditions and is lower than the mentioned peak rates.

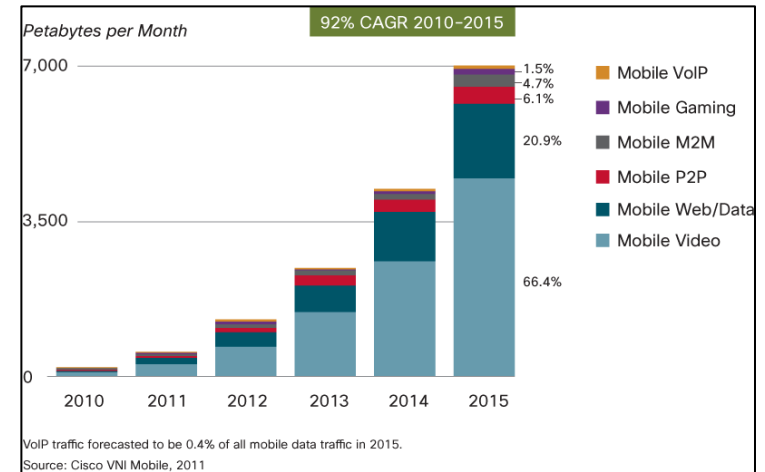
All forecasts tell the same growth story



Source: ITU-R



Source: Cisco VNI Mobile, 2011



VoIP traffic forecasted to be 0.4% of all mobile data traffic in 2015.

Source: Cisco VNI Mobile, 2011



How to deal with growing traffic demand?

Satisfying the traffic increase
by a combination of

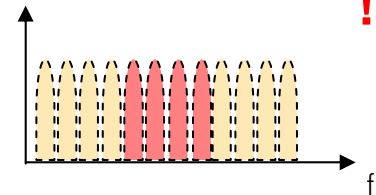
Performance
Improvements



Increasing the
of base stations



More spectrum



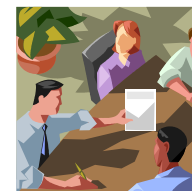
A combination of all of these measures leads to success !



Additional spectrum for mobile broadband is indispensable to serve European Society's future needs for mobile broadband

Success factors to get there

- Common European schedule for implementation.
- Balance of interest between all stakeholders.
 - Definition of appropriate compensation schemes
 - Identification of alternative frequency bands for secondary services
- Dialogue and appropriate information exchange between NRA's and spectrum users is key.





Thank you for your attention !

