

How the digital dividend can facilitate a lower-cost 'broadband for all'

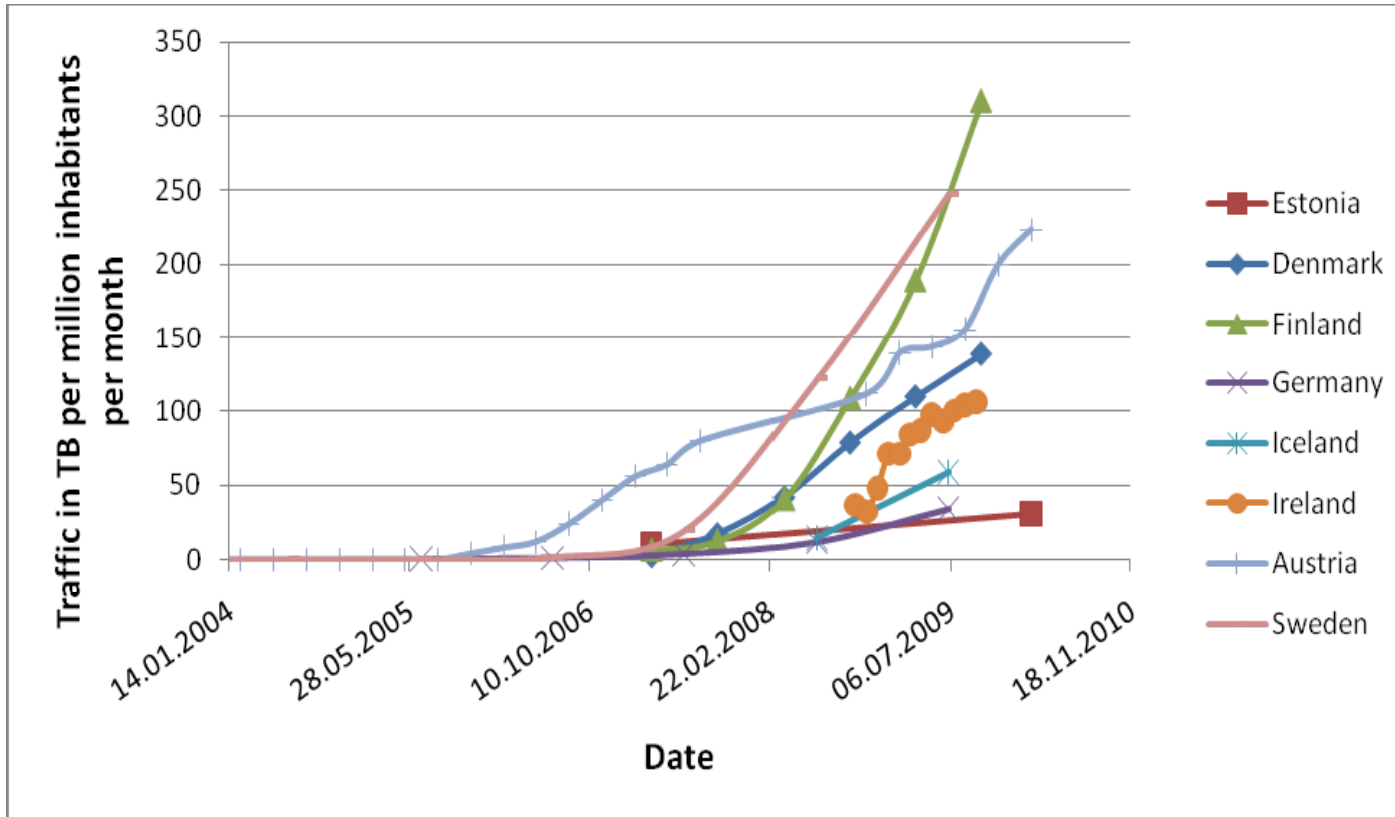
Massimiliano Simoni,
Telecom Italia
ETNO Spectrum WG Chairman

MEP Breakfast
European Parliament
Brussels, 1 March 2011



European Telecommunications Network Operators' Association

Mobile traffic is exploding

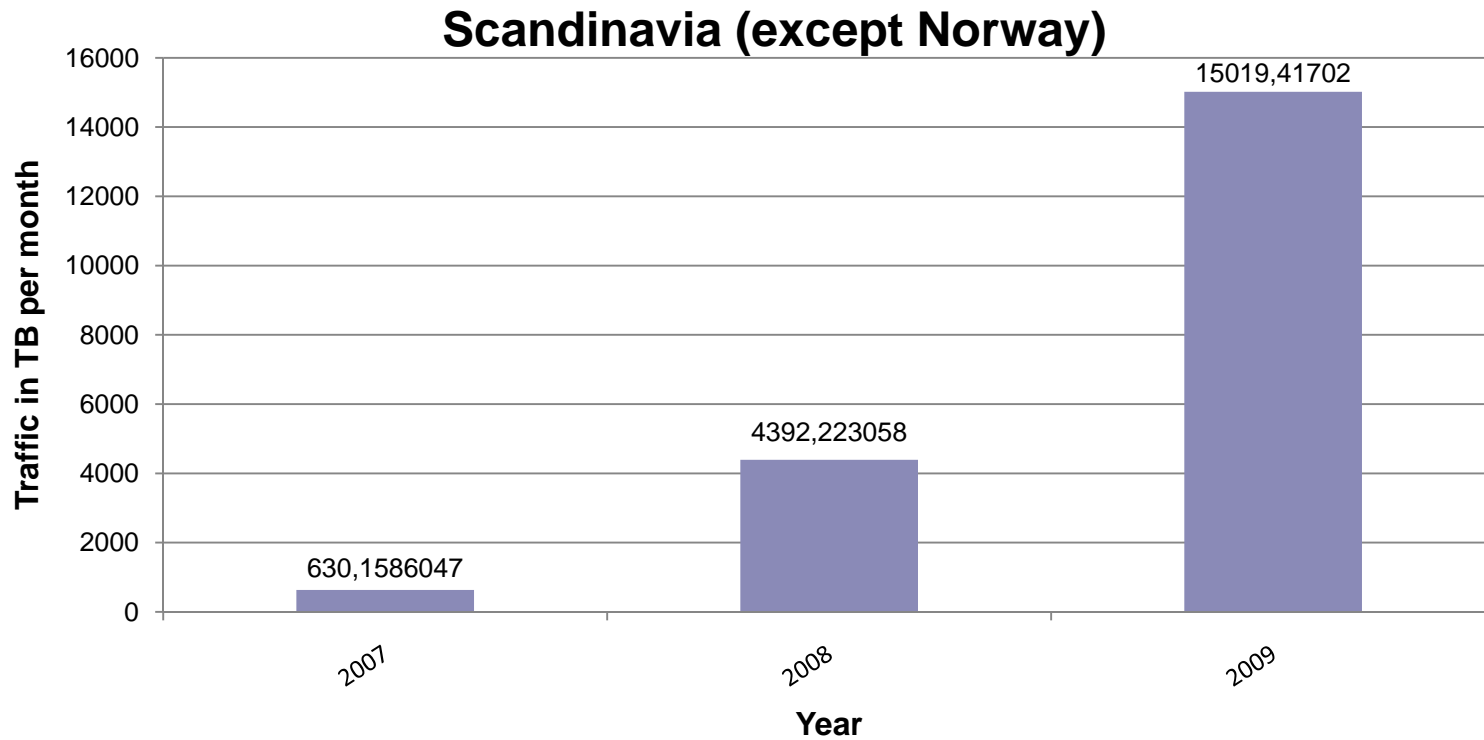


(Source ECC/PT1)



European Telecommunications Network Operators' Association

Traffic growth per month for Scandinavia



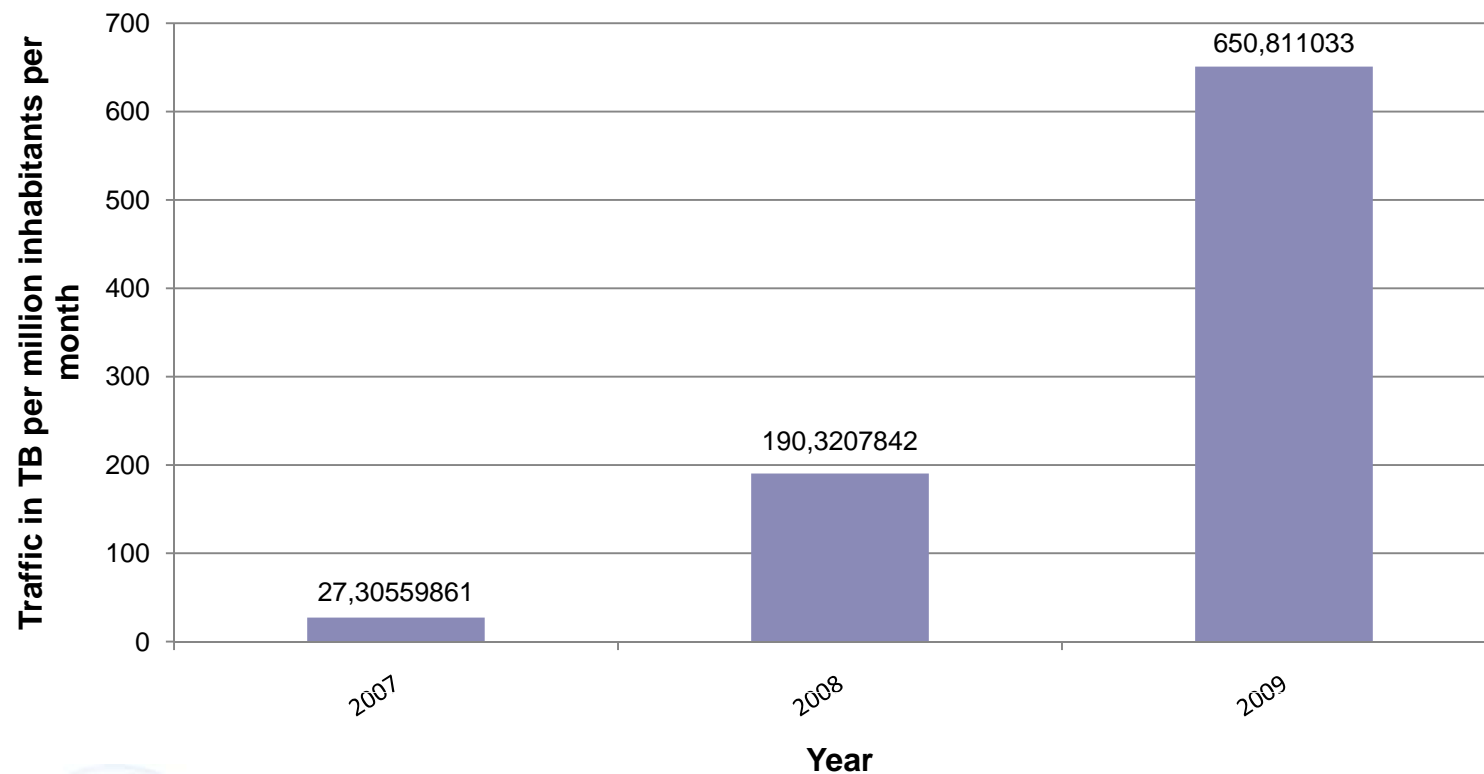
(Source NRAs)



European Telecommunications Network Operators' Association

Traffic growth by user in Scandinavia

Scandinavia (except Norway)



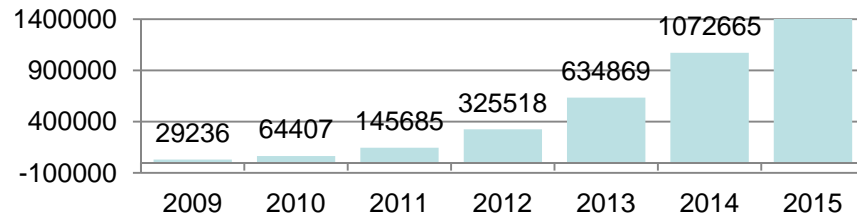
(Source NRAs)



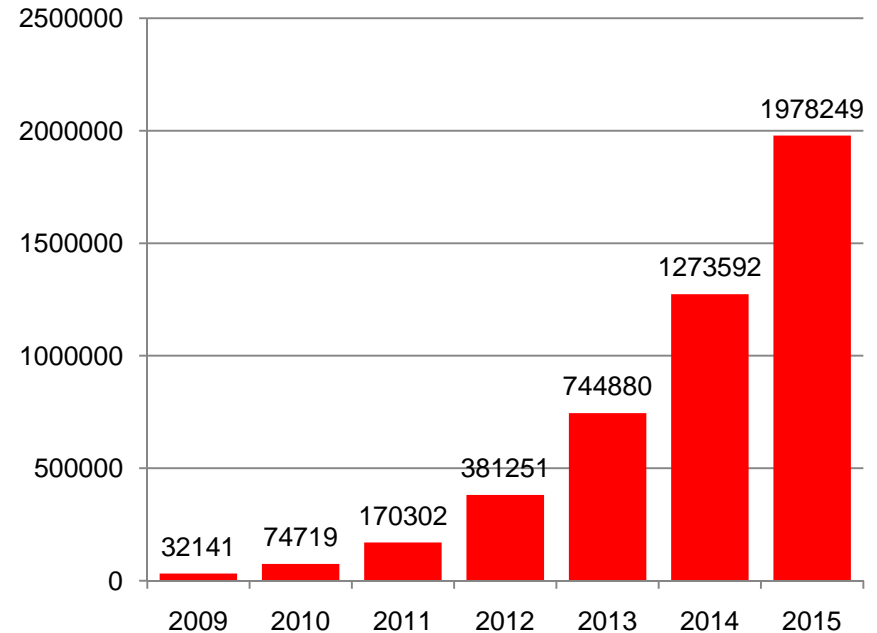
European Telecommunications Network Operators' Association

European trends

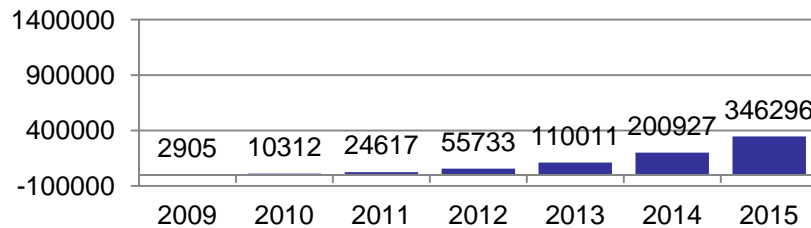
Monthly Mobile Forecast TeraBytes for **Western Europe**



Monthly Mobile Forecast TeraBytes for **Europe**



Monthly Mobile Forecast TeraBytes for **Central and Eastern Europe**



(Source CISCO VNI Mobile, 2011)

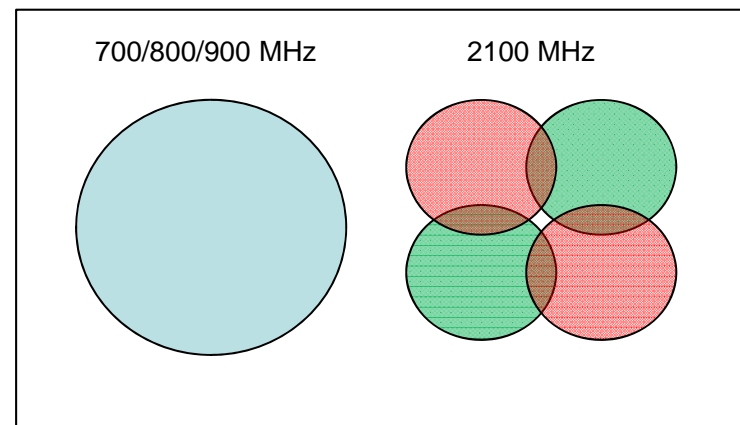


Why the UHF band?

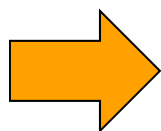
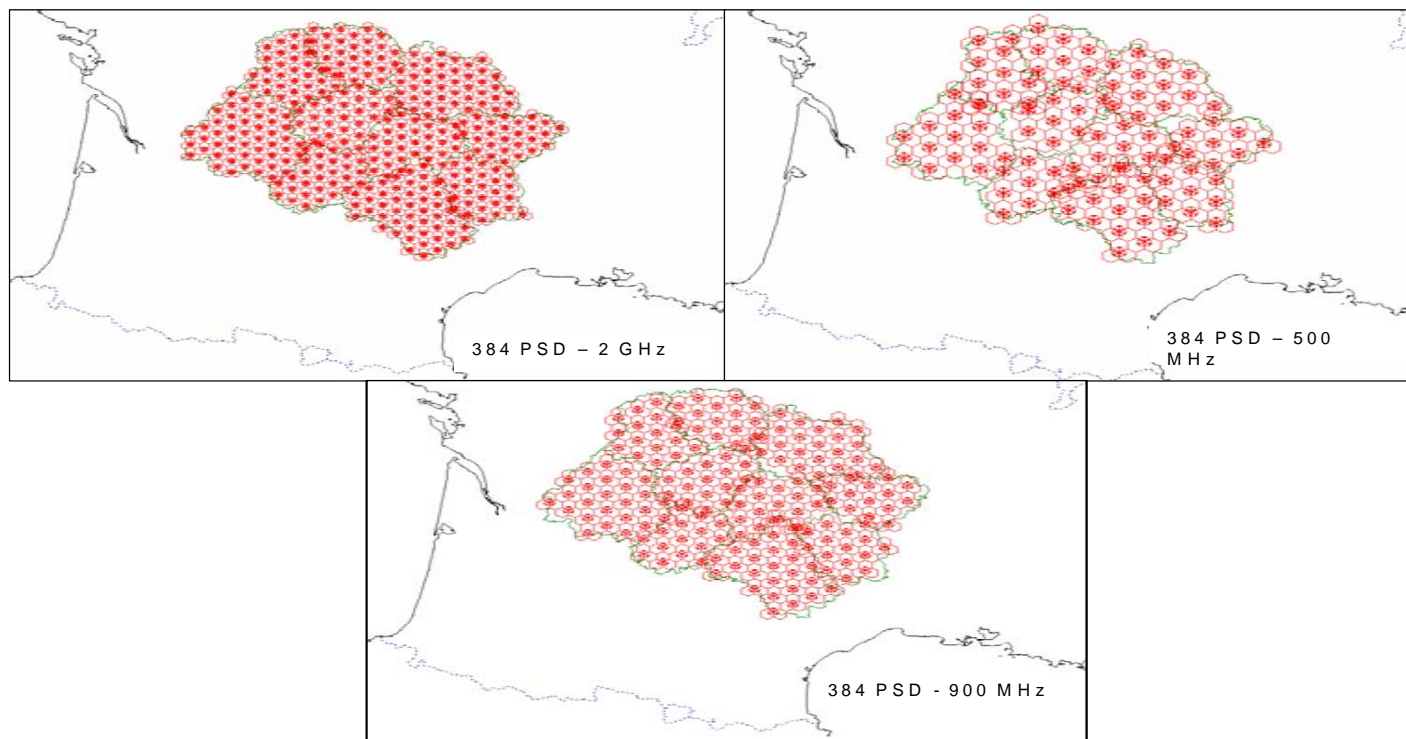
- Lower frequencies allow a good indoor penetration
- Propagation characteristics are better at low frequencies
- the improvement of spectrum efficiency, resulting from the analog to digital broadcasting transition, offers a unique opportunity to refarm part of the broadcasting spectrum for broadband communications

These result in

- Better network coverage
- Less infrastructures
- Less investments required



Mobile network dimensioning at 500 MHz, 900 MHz and 2 GHz

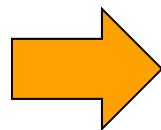
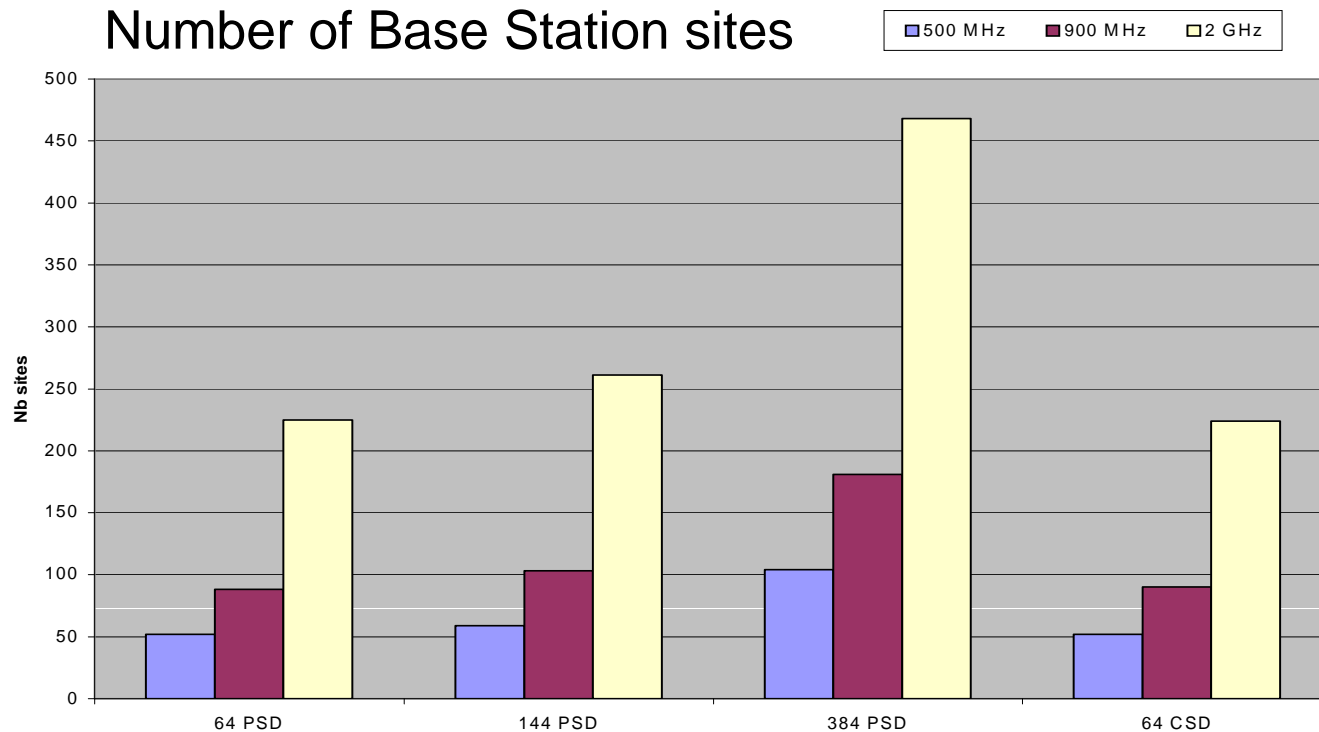


In the lower bands, less base station sites are needed for the same coverage

(Source UMTS Forum)



Sites comparison at 500 MHz, 900 MHz and 2 GHz for various 3G services



In 500 MHz band savings are 3 Base Station sites out of every 4 (i.e. cost savings up to 70-75%)

(Source UMTS Forum)



Network cost comparison at 800 MHz and 2.6 GHz

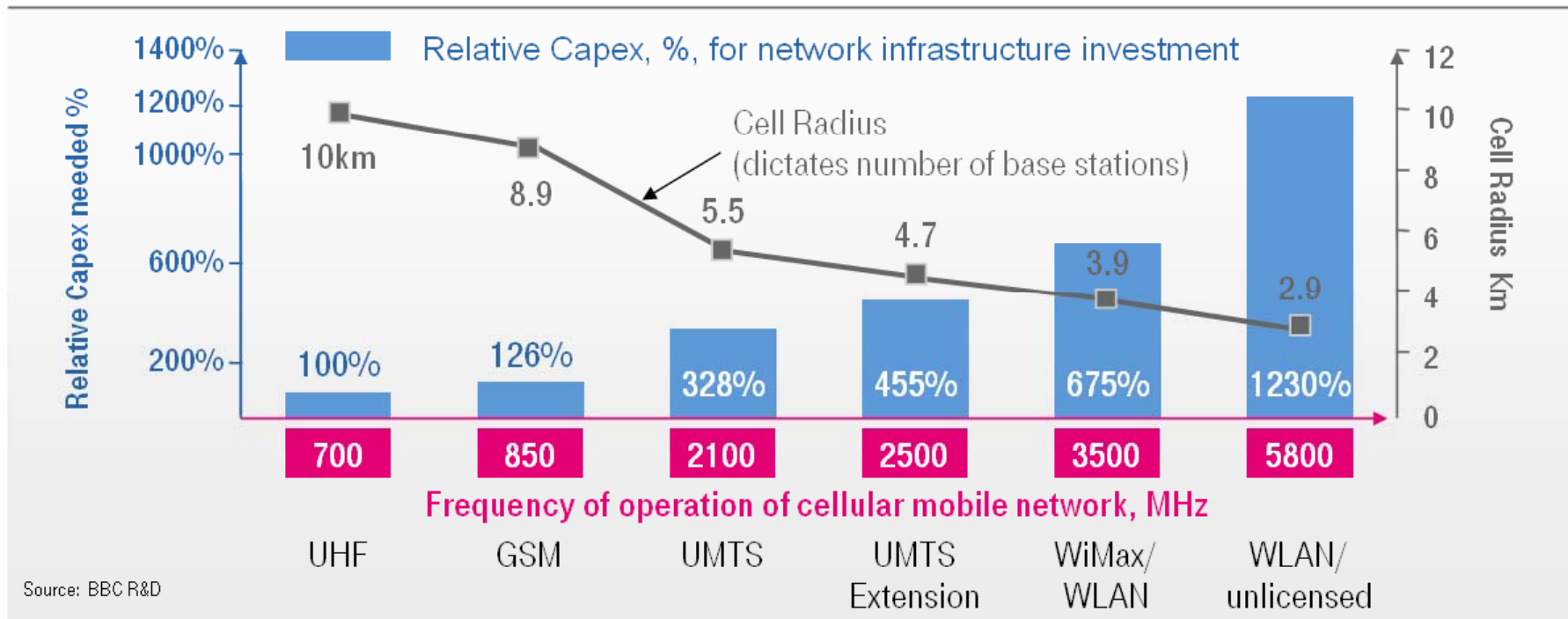
| Million € | 2x5 MHz at 800 MHz | 2x5 MHz at 2.6 GHz |
|---|-----------------------|-----------------------|
| Incremental infrastructure costs for each 10 Million inhabitants coverage | 84 | 335 |
| Backhauling costs | 112 | 112 |

(Source IDATE)



European Telecommunications Network Operators' Association

Sites and Network comparison at different frequency bands



Conclusions (1/2)

- The UHF band is a highly valuable asset
- The propagation characteristics make it the suitable choice for new broadband mobile infrastructure (indoor and rural coverages)
- The improvement of spectrum efficiency, resulting from the analog to digital broadcasting transition, offers a unique opportunity to refarm part of the broadcasting spectrum for broadband communications



Conclusions (2/2)

- The foreseen investments for the rural network deployment at 800 MHz are considerably lower than those foreseen at 2 GHz
- An early date of implementation would ease the deployment of 800 MHz networks through the EU
- This early date should be swiftly adopted by all MS so to avoid border coordination problems and to allow economies of scale
- The reduced costs of 800 MHz network deployment will accelerate the digital divide gap closing, thus helping to meet the Digital Agenda goal
- Nevertheless, additional spectrum in higher bands would be needed for capacity purposes





European Telecommunications Network Operators' Association