



Doing more with less

Digital Terrestrial Television (DTT)

Efficient, drives competition and the platform of choice by consumers

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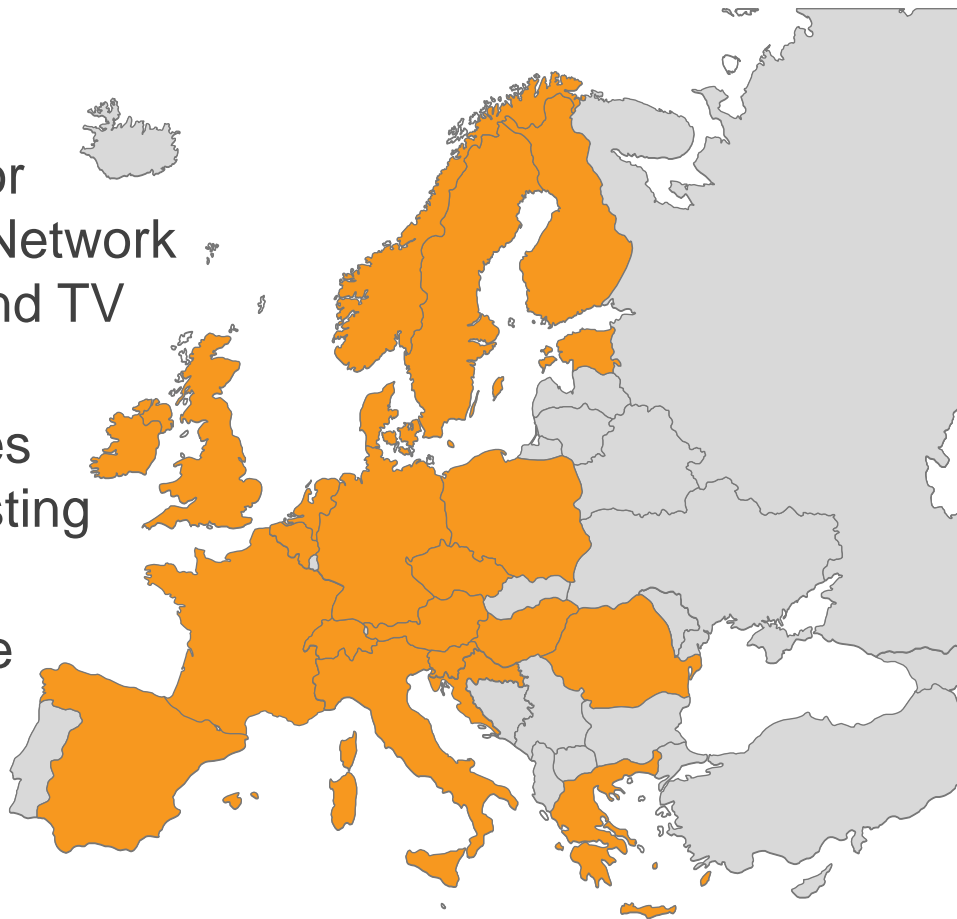
Presentation given at IBC on September 9, 2011

Session : "Broadcast Spectrum – Doing More With Less"



BNE - Members in 24 countries

- A trade organisation for Terrestrial Broadcast Network Operators for Radio and TV in Europe
- Long term opportunities for terrestrial broadcasting
- Current issues: Spectrum, Interference and Digital Services





BNE



14 members, 24 countries



Spain



UK



Czech Republic



Greece



Italy



Norway, Belgium, Slovenia



Croatia



Austria



swisscom

Switzerland



Romania



Italy



Ireland



France, Germany, Finland, Estonia, Hungary, Poland, Austria, Netherlands, Monaco, Spain



Sweden, Denmark

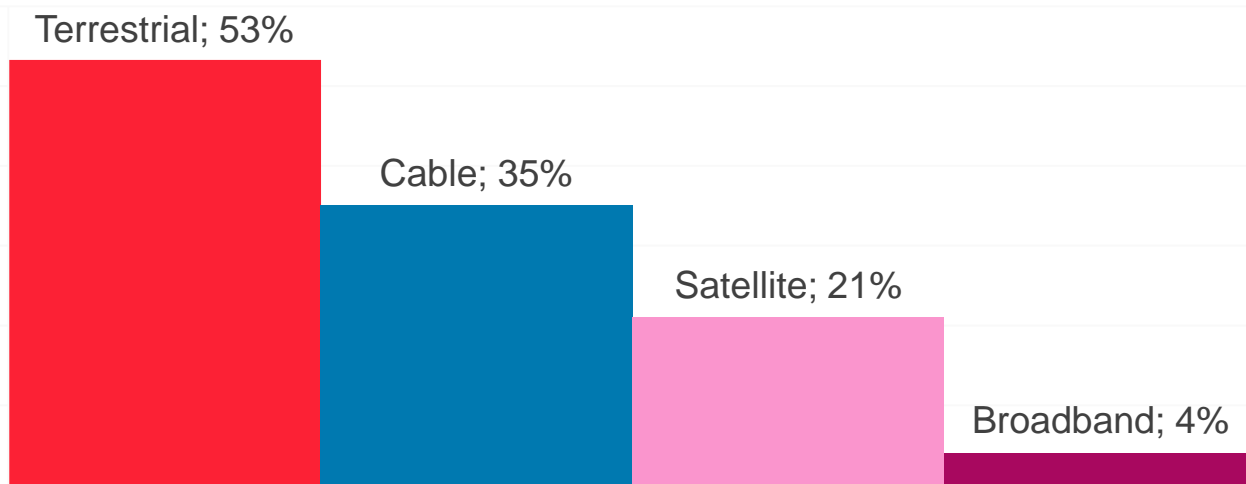


DTT is the platform of choice by consumers

- More than 50% of European households pick their primary TV signal from Terrestrial Broadcasting Networks
- Kitchen-TVs, Bedroom-TVs, Second Homes, Caravans etc add another significant share of households having at least one TV-set on Terrestrial
- Spain, Italy, Greece \approx 100%, France \approx 85%, UK \approx 75%
- DTT is the fastest growing and major platform offering both Free-to-Air Public Service and Commercial TV, as well as popular pay-TV channels
- Terrestrial is simple to use and install, reliable and universally available for European consumers



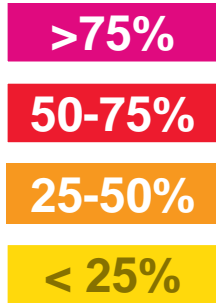
TV Reception, EU27 Households



Data from Eurobarometer 362, 2011. Adds to more than 100%.
Households may use more than one platform.

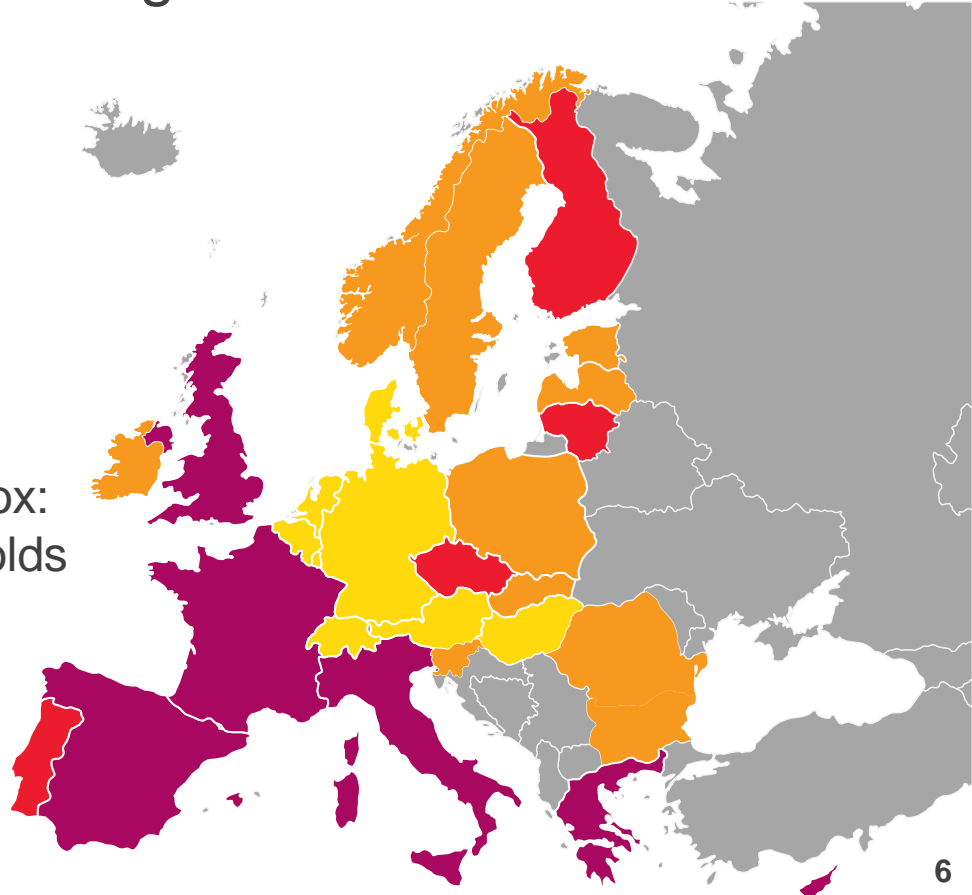


Households receiving TV from terrestrial networks



“Terrestrials” - approx:
120 million households
275 million people

■ Data not collected





Spectacular growth

- Demand for linear TV is growing – quite the reverse of common myths
- Development of Terrestrial Broadcasting is spectacular and represents innovative technology - from carrying just a few analogue channels per country to more than 50 digital channels including HDTV and 3DTV
- DTT will cover 95% - 99,8% of households in most European countries after Digital Switch Over
- More than 750 TV channels are distributed by DTT in Europe today
- About 200 Million DTT enabled receivers have been sold in Europe

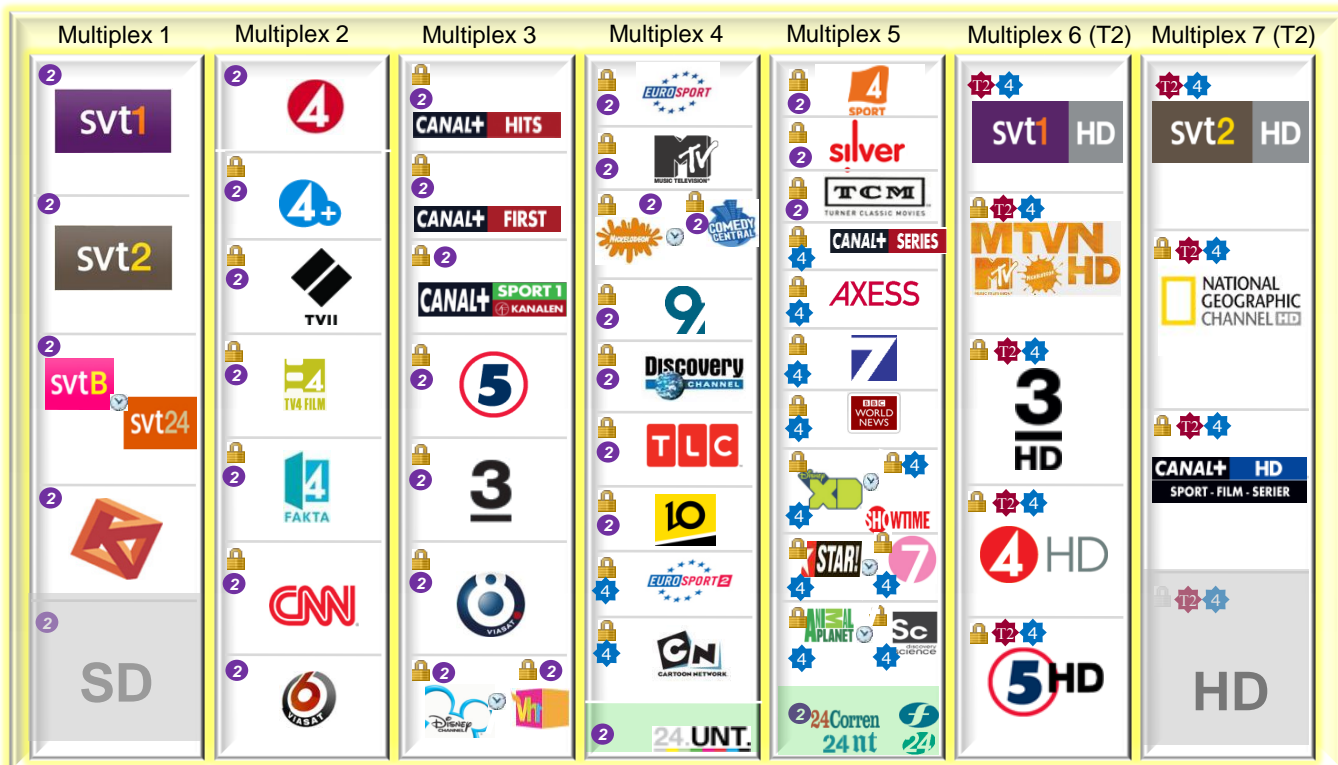


Investments and competition

- DTT is cost efficient and uses spectrum for distribution of linear TV more efficiently than any other terrestrial wireless technology.
- The analog-to-digital switchover has created the 800 MHz digital dividend and has created new business opportunities both for broadcasters, content providers, pay-TV operators and telecom operators
- Consumers and the Broadcasting Industry are now making substantial efforts and investments in making the 800 MHz band available for other services than TV
- Digital Terrestrial drives platform competition and content creation



Digital Terrestrial - 50 SD + 9 HD (Swedish example)



🔒 pay-tv 🕒 timeshared 2 MPEG2 4 MPEG4 4 DVB-T2

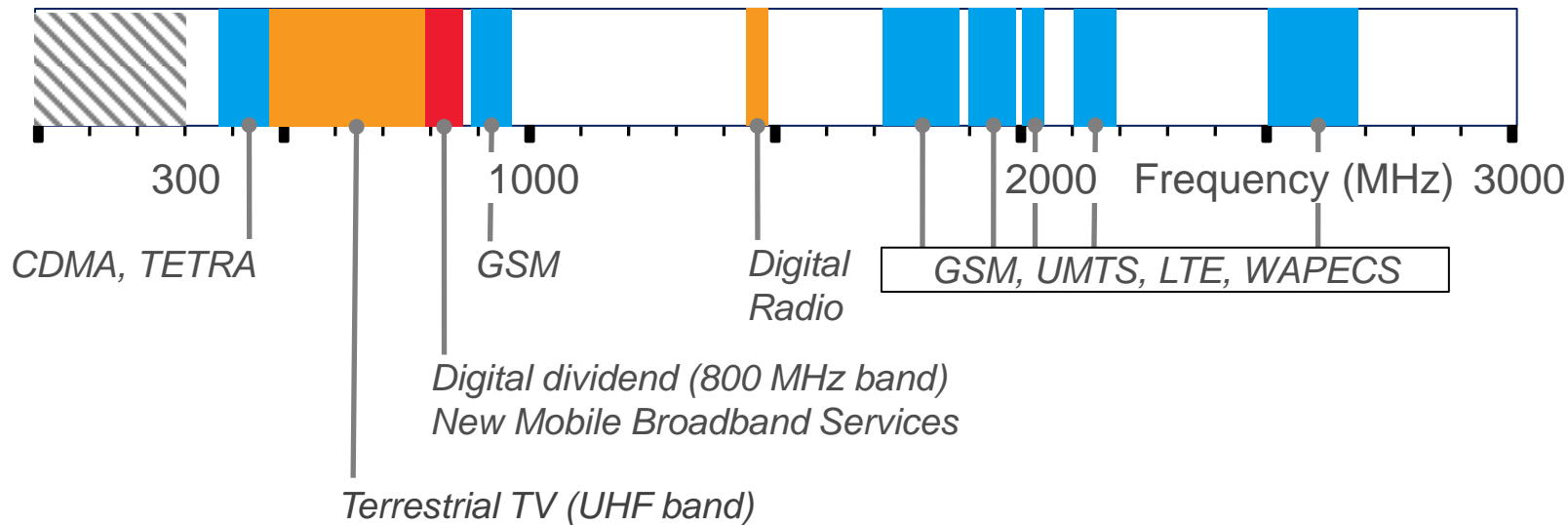


Many services call for spectrum in the 300 MHz to 6 GHz range

- Terrestrial Broadcasting, Mobile Voice and Mobile Broadband, Wireless Microphones, Public Safety, Air Traffic, Maritime Systems, Satellites, Radar, Radio Links, Wi-Fi, White Space Devices, Meteorology, Medicine, Navigation, Astronomy and Defence
- The European Commission has proposed a common European Radio Spectrum Policy (RSPP) and an inventory of spectrum use from 300 MHz and upwards
- Much focus is on Mobile Broadband and Terrestrial TV Broadcasting



Spectrum



Orange square: Broadcasting

Red square: Digital dividend (800 MHz)

Blue square: Mobile services



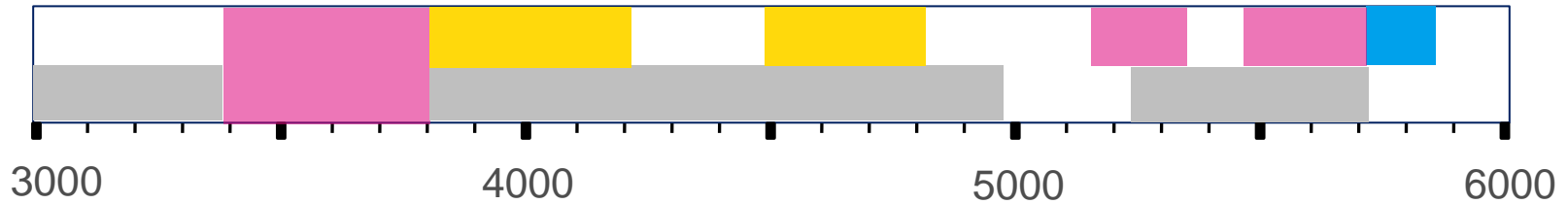
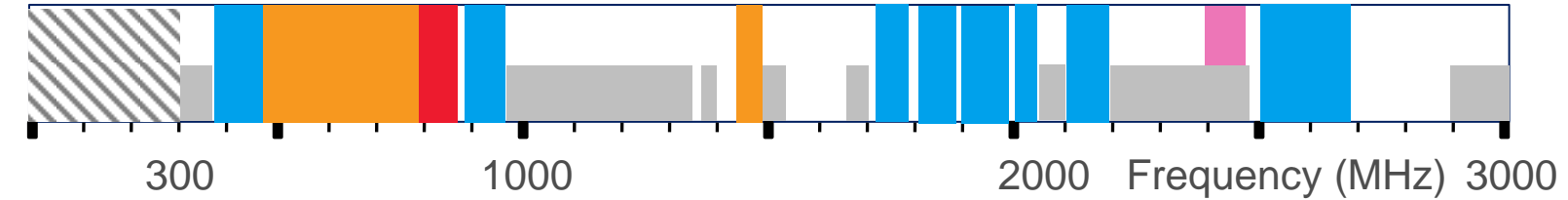


Some comments on spectrum and coverage

- After refarming of the 800 MHz band DTT will use all remaining spectrum in the UHF band
- UHF band is optimal for DTT – coverage and efficiency. To this end LTE will never be used to deliver TV to large screens
- One single DTT site can cover 10 million+ people and a large area
- Increasing demand for wider choice, more channels, HDTV and 3DTV drives requirements on capacity and efficient use of spectrum
- DTT can co-exist with Wireless Microphones
- DTT may be able to co-exist with White Space Devices
- Interference from mobile broadband in 800 MHz is a real issue and consumers must be protected from losing their TV reception



Spectrum from 300 MHz to 6 GHz under study to find options to add new services



- Defence, exclusive or shared
- Broadcasting
- WLAN, BWA, Wi-Fi
- Digital dividend (800 MHz)
- Satellite
- Mobile services



The multi capable digital terrestrial network – Doing more with less

- Universal coverage, fixed and mobile reception
- Serves primary TVs, kitchen TVs, bedroom TVs, second homes, caravans, cars, boats, mobiles ..
- DVB-T / MPEG 2 is currently used in several countries
- For new services DVB-T2 / MPEG4 is introduced gracefully rather than asking for more spectrum
- HDTV and 3DTV already on air
- Over the top, Hybrid solutions, Connected-TV, Push-TV, Advanced Recording Services ...
 - Attractive, competitive and simple to use
 - Consumer's choice – Much is Free-to-Air





DTT in Europe serves 275 million people
and provides 750+ TV channels.
Around 200 million DTT enabled receivers
have been sold to date.