

The slide features a dark background with a grid of small orange dots. A large, bright orange sunburst or light flare is visible on the right side, with several thick, curved orange lines sweeping across the scene. The text is white and positioned on the left side.

WORKSHOP

REVISÃO DO QUADRO
REGULAMENTAR
DAS COMUNICAÇÕES
ELECTRÓNICAS

WORKSHOP

Sana Malhoa Hotel, Lisboa
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A nova regulação do espectro radioelétrico

Spectrum Policy and the Review

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* *Disclaimer: the views expressed are those of the author and cannot be regarded as stating an official position of the European Commission*



Overview

- Why spectrum matters...
- Shifting role of spectrum management and reform proposals
- The Review: context and elements for change
- The Authority and spectrum
- Proposals for the Digital Dividend



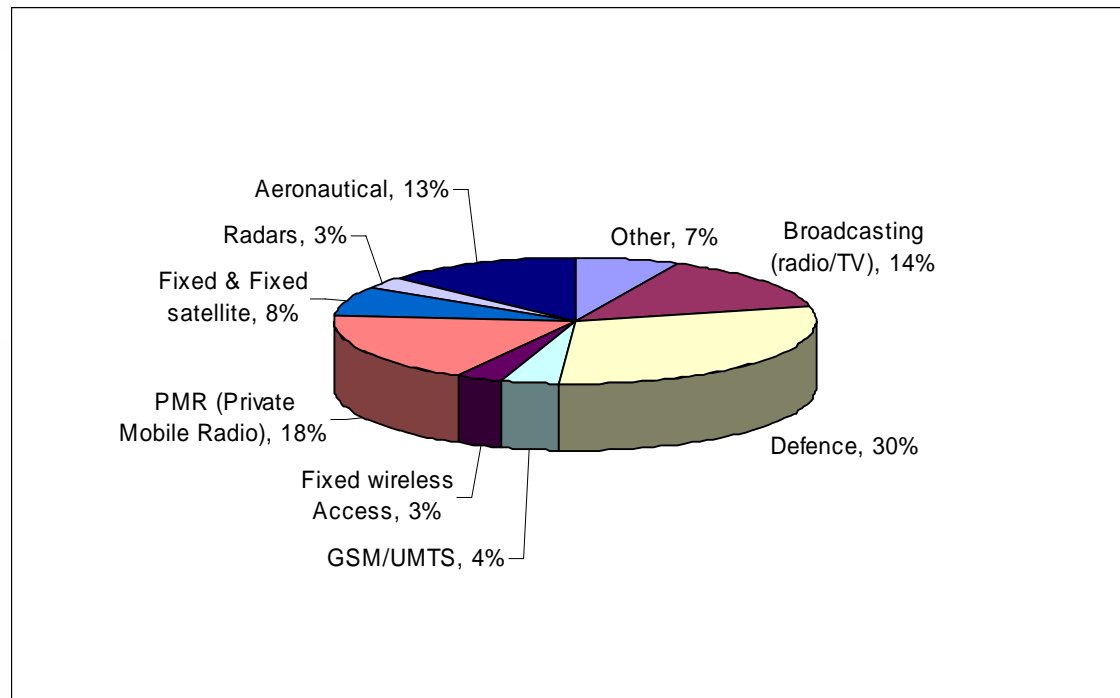
Why spectrum matters

- **Spectrum** as a key input to manifold economic and societal activities has a **value**
 - Spectrum **enabling economic activities**:
Volume of services depending on spectrum estimated to bn € 250 annually, i.e. 2-2.5% of EU GDP
 - Growing **commercial usage**, but at the same time significant **public use** and **cultural dimension**.
 - Growing “**scarcity**” of spectrum
- **Usage of Spectrum** pervasive in nearly all activities of society
 - Spectrum as enabler: Society gains in efficiency / digital integration / cultural vector
 - “Mobility trend” of society: information on the move
- Strong **interaction between spectrum and innovation**
 - Rapid technical progress if spectrum is available
 - Technology development enables efficient spectrum usage



Current Distribution of Spectrum in Europe between 30MHz and 100 GHz

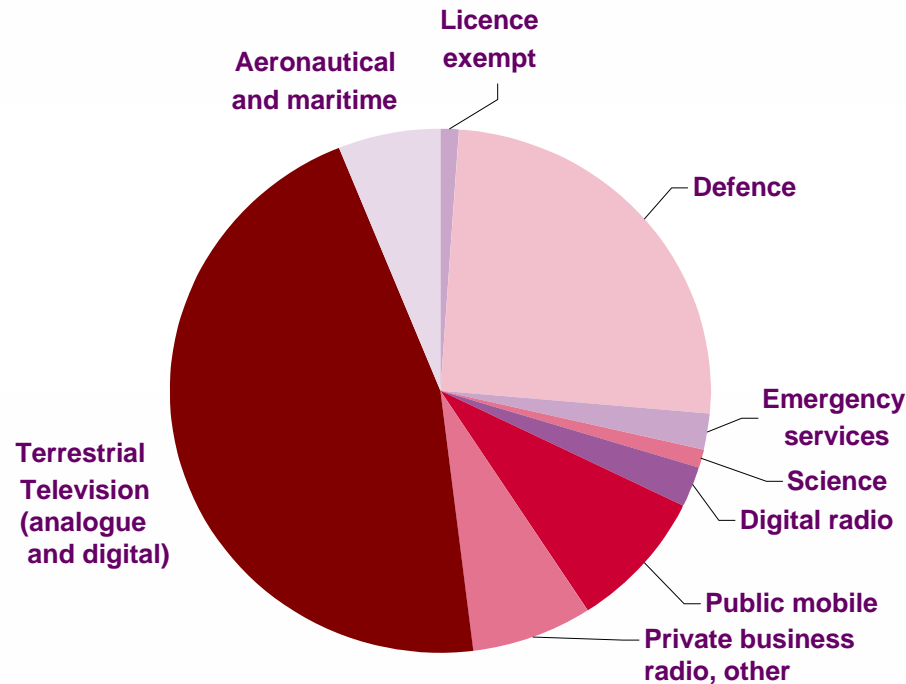
Spectrum is 'full' and used by very different stakeholders.
~50% broadcasting and defence.



Source: UMTS Forum

Distribution of spectrum in 200MHz-1GHz in the UK

<1 GHz: broadcasting / defence usage dominate (~75%)
over mobile (~20%)

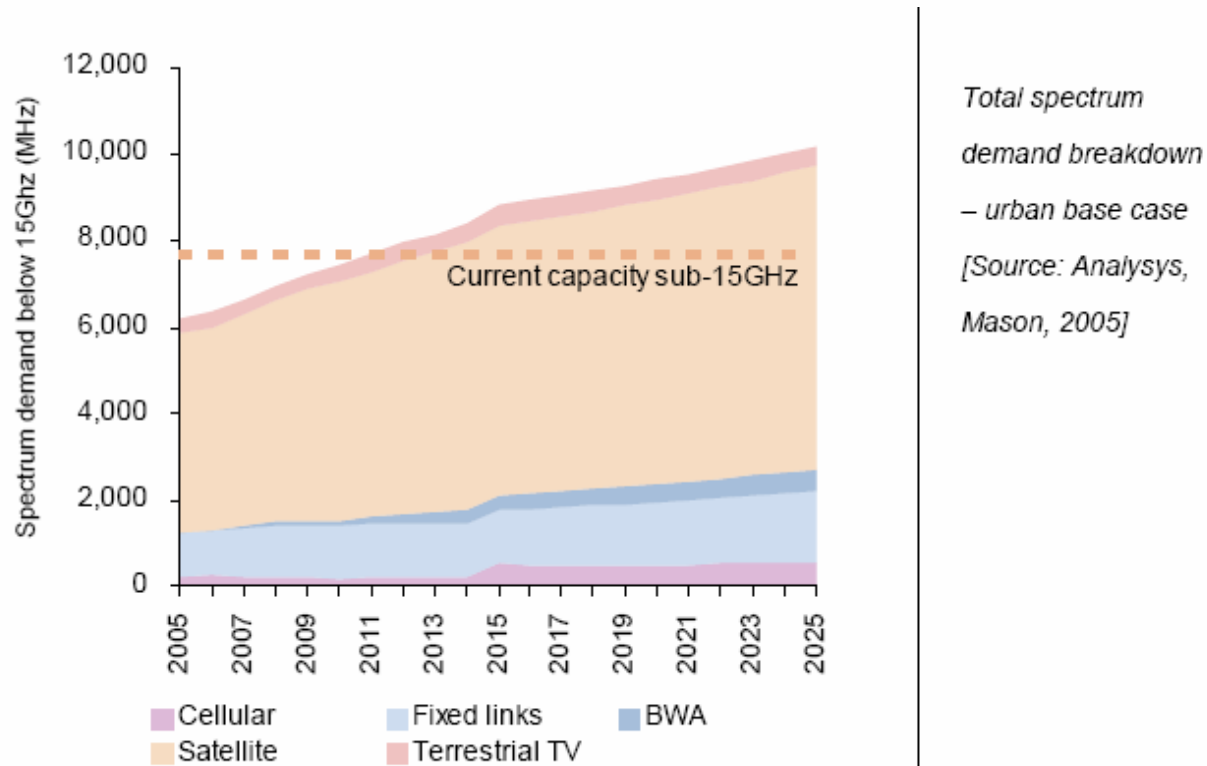


Source: UK Ofcom's digital dividend review



Projected future demands for spectrum use below 15 GHz

Spectrum is insufficient to meet long term demand.

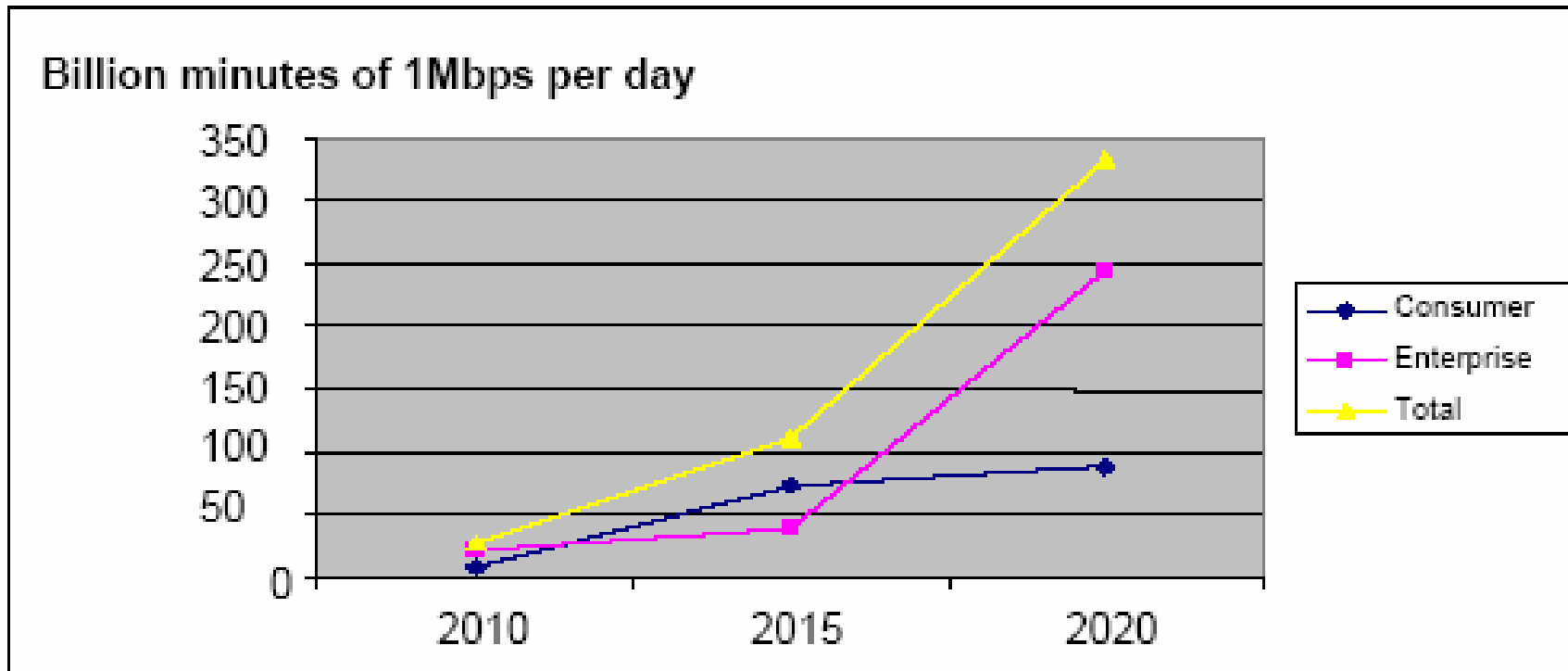


Source: Final Report for the Independent Audit of Spectrum Holdings, Her Majesty's Treasury, Analysys Mason, 1 Sept. 2005
– Spectrum Demand for non-Government Services 2005-2025 -



Estimated mobile traffic

Growing demand: the mobile case – same for other sectors.



Source: *The Demand for Future Mobile Communications Markets and Services in Europe*, S. Forge et al., 2006.



Unlicensed use of spectrum market projections

Exponential growth in licence free use of wireless devices.

Sector	% dependent on collective use	2003 estimate (€Bn)	2009 estimate (€Bn)
Wireless LANs	100	1.39	8.5
Automotive	10 - 20	0.39	1.72
Medical Devices	10 - 20	3.0	8.4
Home Automation	50	0.51	1.54
RFID	100	0.4	2.9
PMR446	100	0.14	0.14
Cordless Phones	100	1.7	1.9
Telemetry / M2M	100	0.25	0.59
Other Applications	100	0.38	0.76
Total		8.16	26.45

Source: Study on Legal, Economic & technical Aspects of 'Collective Use' of Spectrum in the European Community, Mott MacDonald, 2006.



The shifting role of spectrum management

- “Spectrum management” matters
 - “technical” management
(laws of physics → interference, technical efficiency)
 - “achieving best social welfare”
(societal / economic potential of radio resources)
- Key issues
 - Permitted / intended usage
 - Access to spectrum resources
 - Coordinated approach throughout Europe



Permitted use: towards more flexibility

- Segmentation of spectrum by restricting permitted technology or service creates scarcity
 - Wrong technology choices sterilise spectrum
 - Services evolve according to market demand
- Spectrum users know best → **empowering users**
- Convergence → **any service by any technology**
- WAPECS approach (COM(2007)50) for ECS
 - **Technology neutrality**
 - **Service neutrality**
- Risk: interference / inefficient spectrum use ?
- Approach already reality: 3.4 GHz, 2.6 GHz
 - mobile / nomadic / fixed services
 - Block-edge mask approach to contain interference



Access conditions: lowering access hurdles

- In case of individual rights: **tradability of spectrum**
 - Most efficient user buys spectrum
 - Possibility for user to adapt to spectrum needs
 - More “fluidity of spectrum”: more spectrum available
 - Risk of dominance through hoarding ?
- Favouring **unlicensed spectrum approach**
 - Removed access hurdle (price to pay: mitigating interference)
 - Spurring innovation
 - No scarcity of spectrum in unlicensed bands
- Mix of management paradigms
 - Command and control on limited cases (public use)
 - Individual license and license-exempt coexisting
 - Trading is already a reality
 - License exempt exists



Coordination

- Coordinated spectrum management to **support the EU internal market**
 - radio markets have increasingly a EU dimension: are 27 national radio regulations in the EU viable ?
 - synergy effect of a coherent EU approach
 - efficient regulation though coordinated approach
 - radio markets are global. How does the EU answer in the light of fragmented spectrum management ?
 - European coordination does not exclude taking into account national differences !
- **Market size matters** in the radio sector
 - equipment: economies of scale
 - services: interoperability
- **Innovation**: leveraged by market size



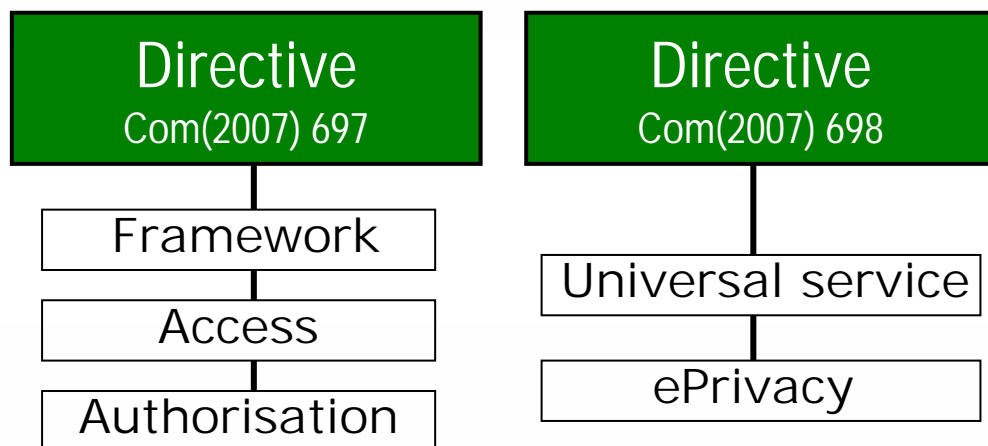
Coordination

- Spectrum for **pan-European systems**
 - Example: Mobile Satellite Systems
 - > harmonised band usage conditions
 - > coordinated licensing
 - Example: mobile communications on airplanes
 - > harmonised technical conditions
 - > agreement on mutual recognition of license or general authorisations

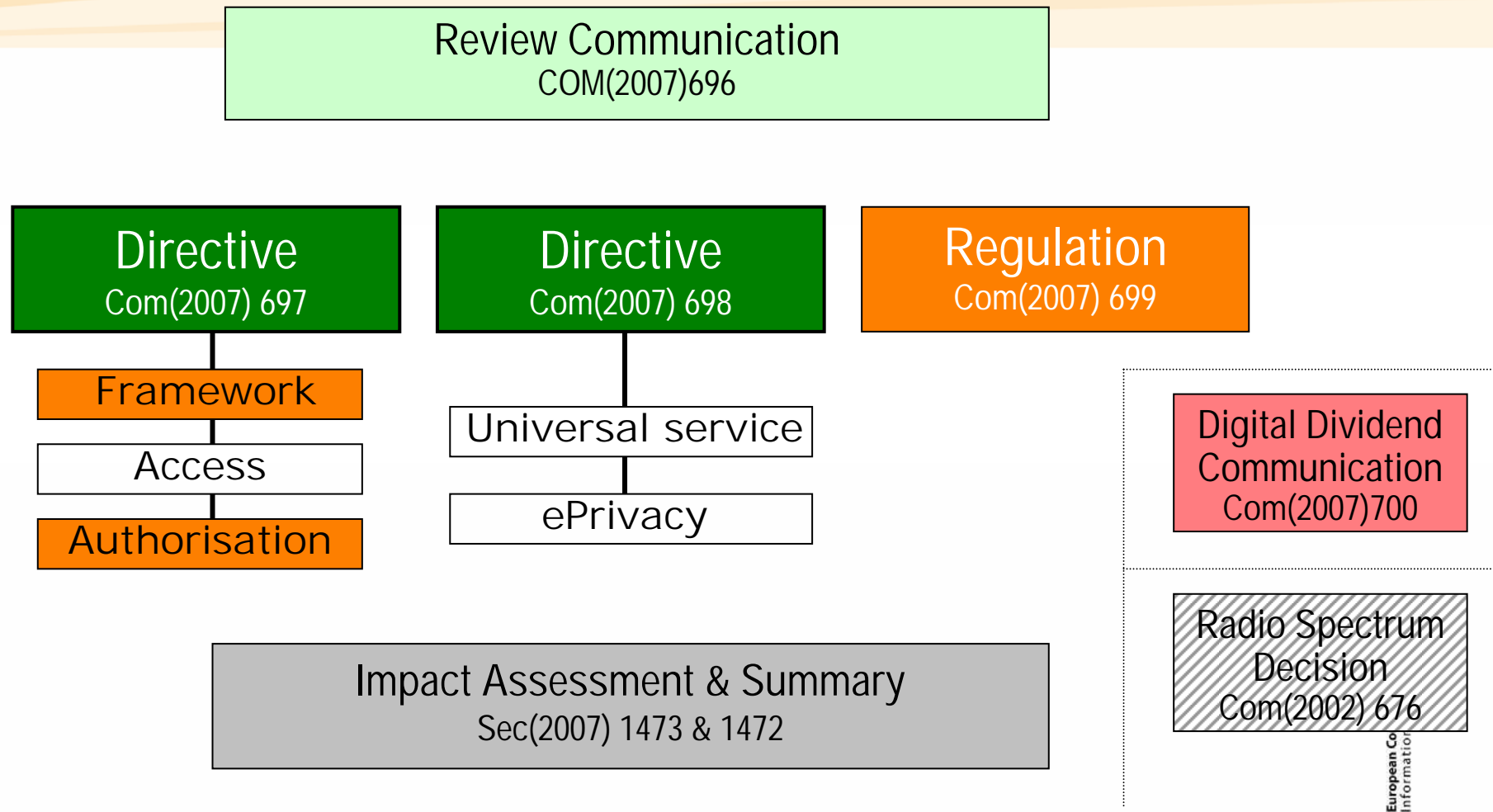
- But: **Legal basis** for coordinated approach missing



Elements of the Reform Package



Elements of the Reform Package



Main spectrum issues addressed in the review

- **Flexibility in spectrum usage**
 - technology neutrality
 - service neutrality
- **Facilitating access to spectrum**
 - general authorisations
 - spectrum trading
- **Coordination in the EU**
 - bands status
 - authorisation conditions and procedures
 - selection



Technology neutrality (TN) (Flexibility)

- *Rule:*
any type of technology in any band
- *Deviating from rule means:*
imposing technical constraints
- *Restriction from rule permitted only to*
 - avoid harmful interference
 - protect public health
 - maximise spectrum sharing
 - comply with exception to service neutrality



Service neutrality (SN)

(Flexibility)

- *Rule:*
any service in a band
- *Deviating from rule means:*
imposing service obligation
- *Restriction from rule permitted to*
fulfil objective of general interest, such as
 - safety of life
 - cohesion
 - avoiding inefficient use
 - promoting cultural and linguistic diversity, media pluralism
- No exclusive service obligation (except safety of life)
- Periodic revision of restrictions



General Authorisations (GA)

(Facilitating access)

- *Rule:*
General authorisations
- *Deviation from rule:*
using individual rights, to be **duly justified**
- *Deviating from rule only for*
 - Avoidance of serious risk of harmful interference
 - Fulfilment of objectives of general interest



Spectrum trading (ST)

(Facilitating access)

- spectrum trading can be made applicable in the EU
 - in commonly identified spectrum bands
 - Commonly agreed conditions and procedures for trading in these bands
- competition safeguards
- legacy rights:
gradual transition towards tradability in identified bands



Coherent approach to spectrum regulation (coordination)

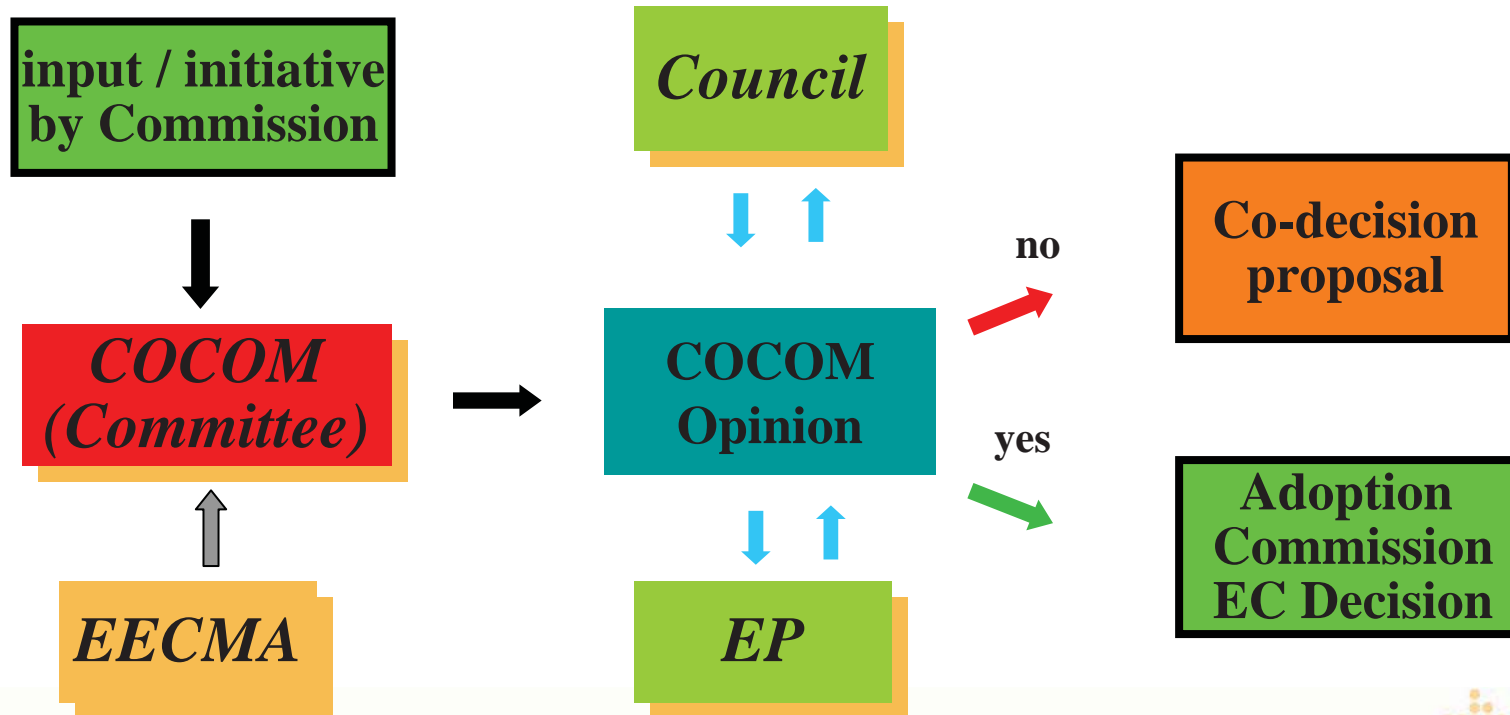
EU harmonisation possible for the following cases

- Identification of RF bands subject to general authorisations or individual rights of use
- Harmonisation of authorisation conditions and procedures
- Harmonisation of deviation from technology / service neutrality
- Harmonisation of competition safeguards in case of trading
- Coordination of issuance / withdrawal of rights of use (rights of use remain national)
- Common selection process for pan-European services (authorisation procedures for national services not affected)



Harmonisation procedure

- "Comitology"
- Communications Committee (COCOM)
- Scrutiny by Council and Parliament



The European Authority (EECMA) and Spectrum

- On spectrum:
EECMA issues advice linked to e-communications
 - upon request from the Commission
 - deliverable: provides expertise, undertakes studies and reviews
 - coverage: technical and economic aspects including matters subject to the Radio Spectrum Decision

- **Adding value to existing EU cooperation mechanisms** – not substituting them.

The European Authority (EECMA) and Spectrum

- EECMA involvement on coordination measures:
 - Opinion on **harmonisation measures relating to spectrum use** incl. technical harmonisation measures
 - Special assistance in **common selection procedures**: carries out in practice common selections; propose selected candidates to be granted spectrum rights on a common basis; Opinion on withdrawal of rights issued under common procedures.
- Authority action does not replace decision via comitology – it gives support.



The European Authority (EECMA) and Spectrum

- For spectrum usage rights subject to common selection procedure:
 - Collects administrative **charges**
 - Collects and redistributes **usage fees**
- Resolution of **cross-border disputes**
- Manages a **spectrum information register** for harmonised availability of information on use of spectrum in the EC.



Digital Dividend: a unique opportunity

- Radio spectrum freed up as a result of transition from analogue TV to more efficient digital TV
- The largest amount of spectrum potentially available for civil use in such a short time frame (i.e. by 2012 or earlier)
- Spectrum with excellent propagation characteristics → minimal infrastructure costs
- **How to maximise the socio / economic benefit ?**



Digital Dividend: a unique opportunity

- Many possible uses:
 - Broadcasting:
more TV channels, HDTV, digital radio, etc
 - Mobile and fixed communications:
wireless access to bridge “broadband gap”, mobile access to high speed data, public safety service, etc
 - Hybrid broadcasting/mobile: e.g. mobile TV
 - Other application:
analogue wireless microphones, RFIDs, etc
- **Potential win/win situation** provided a **coherent approach** is taken taking into account
 - fragmented situation due to legacy
 - different timetables in Member States
 - regulatory constraints
- Digital Dividend Communication COM(2007)700



Digital Dividend: a unique opportunity

- General approach:
 - Avoidance of partitioning of the digital dividend by services
 - Ensure continuity of existing broadcast services
 - Make an efficient use of the spectrum (uncoordinated coexistence of different networks creates interference problems)
 - Create conditions for pan-European bands to emerge
- Proposal:
 - Principle of clustering of UHF band by types of networks
- Methodology:
 - Studying best options: location / size of clusters/ flexibility/ time table of implementation taking market demand, national situations, cost / benefits of reorganisation of band technical and regulatory constraints etc. into account
 - Establishing a coherent approach with agreed targets



Conclusions

- Regulatory framework currently in place has essentially delivered, while now being improved and taking into account expected developments.
- But the spectrum the regulation in place is far from offering a coherent framework.
- The spectrum related proposals in the review aim at giving the regulatory foundation for the objectives of the spectrum reform which has been discussed over the last years.
- The challenge to improve spectrum management is already today a reality. We need to address this now.
- The regulation proposed in the review as for spectrum is expected to facilitate this task.



References

➤ **Review proposals**

http://ec.europa.eu/information_society/policy/ecomms/library/proposals/index_en.htm

➤ web site: **Radio Spectrum Policy**

(reference docs, ongoing work etc.)

http://ec.europa.eu/information_society/policy/radio_spectrum/index_en.htm

➤

➤ web site: **Radio Spectrum Policy Group (RSPG)**

(specific reference RSPG docs, ongoing RSPG work etc.;)

<http://rspg.ec.europa.eu/>

➤ web site: **Radio Spectrum Committee (RSC)**

(RSC reference docs)

<http://forum.europa.eu.int/Public/irc/infos/radiospectrum/home>

➤ contact: INFSO-B4-EXT@ec.europa.eu

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