

EU spectrum policy: Spectrum for wireless broadband communication in context

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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.*

Scope of presentation

- **Recalling the origin of EU spectrum policy**
- **EU spectrum policy today and trends:
broadband wireless in context**
- **Demand/supply of spectrum for broadband wireless:
key questions**



The time line of EU spectrum policy



start EU ICT
research

~1985

liberalisation
EU telecom
sector



start GSM
services

start
internet

~1990

single
market



UMTS
auctions

1999 2000 2002

first integrated
regul. framework



digital
broadcasting

2009

review

Spectrum Green Paper

Radio Spectrum Decision, RSPG

RSPP



EU spectrum policy evolution

- **Technological developments have triggered wireless markets / services of EU dimension**
 - GSM → UMTS → LTE; analogue → digital broadcasting
 - voice services → multimedia services, wireless internet
 - Other sectorial policies of EU dimension
- **Regulation:**
 - EU policy liberalisation of telecoms sector + internal market
- **Radio spectrum management:**
 - *from fragmented sectorial appropriation*
 - spectrum as key production factor / social enabler requiring a holistic approach
 - *from predominance of technical aspects*
 - economic and social efficiency of spectrum usage
- **EU dimension: radio waves cross borders...** (also the EU outer borders!)
 - coordination of spectrum policy at EU level
 - → international dimension in the light of EU economic weight



Key principles of EU spectrum policy

Drawing “best economic and social benefit” from spectrum :

- **Coordination and harmonisation where added value**
 - economies of scale, interoperability
 - coherent opening of usage of spectrum for EU wide opportunities
 - market based usage right management for commercial usage
 - least constraining regulation (access to usage rights)
- **Innovative environment stimulating competition**
 - synergy with R&D
 - technological /service neutrality
 - spectrum and competition safeguards
- **Technical efficiency of spectrum usage**



Spectrum policy: where do we stand ?

- **The good news:**

- spectrum matters are no longer considered primarily technical, but are on the agenda of politicians and Parliaments

- **The concern:**

- we are far from having stable management methods and models
- stimulating a timely and optimal spectrum usage is critical more than ever
- EU coordination is still below potential
- the decision cycles need to be shorter, but the decision procedures still take long time as in the past

- **...and**

- **the demand for (valuable) spectrum is increasing !**



Focus: “Digital Dividend” ?

“Digital Dividend” debate has been dominating spectrum policy discussions...

- **“fresh spectrum” perspective and the steep increase of wireless broadband traffic**
- **debate “efficient use” (technically, opportunity costs)**
- **usage competition:
“content vs. communication”; “public vs. commercial”**
- **legacy usage rights vs. competition for access rights**
- **interference between spectrum usages**



An evolving spectrum policy

...but the reality of spectrum policy is by far complexer:

- **internet access and the role of wireless broadband:**
coverage, performance, substitutability fixed / wireless
- **changing “communication consumption”:**
broadcasting, wireless data, mobility
- **spectrum usage covers more than broadcasting and mobile**
(global challenges, wireless in socially relevant sectors
such as health, governments, commerce, security)
→ **the Digital Agenda for Europe**
- **new applications** (e.g. internet of the things) and
news emerging usages (personal area communication)
→ **prediction of spectrum needs are increasingly difficult**
- **technological developments** (cognitive radio)
→ **impact on regulation**
- **spectrum management approaches are evolving**
(definition of usage rights and interference, valuation of spectrum,
sharing concepts, dynamic usage, spectrum / competition)



Spectrum for wireless broadband communications

Introducing the seminar: a simple set of question at the outset...

- **Demand:**

- How much spectrum for wireless broadband do we need in future ?

- **Supply**

- What can we do to anticipate and satisfy the demand ?

Can we structure these key issues in more details ?



Spectrum for wireless broadband communications

Demand:

- **What role do we anticipate for wireless broadband ?**
 - wireless access ? Mobility ?
 - does broadband have to be wireless ?
 - nature of data traffic ? (general internet, media streaming, application specific data, personal cloud, etc.)
 - what role does wireless broadband play in reaching the DAE goals ?
- **What type of radio access do we expect to dominate spectrum demand ?**
 - local radio access to connect to fibre backbone ?
cellular networks and backhaul ? satellite broadband ?
- **Do we have enough data to estimate the traffic ?**
- **How to estimate spectrum demand from anticipated traffic data, considering wireless technologies and their evolution ?**



Spectrum for wireless broadband communications

Supply:

- **Is the EU on track making sufficient spectrum available in time?**
(domestic needs ? comparison internationally ?)
- **Where will spectrum be found if more spectrum needs to be made available ?**
 - new (additional) spectrum bands ? (at the expense of whom ?)
 - potential of sharing and dynamic spectrum aspect ?
 - spectrum from efficiency gains ? How to enforce efficient use ?
- **What timeline to envisage for making additional spectrum available ?**
 - critical foreseeable milestones ?



Spectrum for wireless broadband communications

Implication for policy makers and administrations:

- **What changes in spectrum management methods ?**
 - refarming scenarios and approaches ?
 - spectrum / competition ?
 - fostering technically efficient spectrum usages ?
 - stimulating innovation
 - interference models ? usage rights ?
- **Where is action at EU level warranted ?**
 - harmonised bands ? (technical usage conditions)
 - coordinated approach to issuing usage rights ?
- **Is action at international level needed ?**
 - coordination with trading partners ?
 - WRC level ?
 - standardisation and spectrum management ?



Thank you for your attention !

...and for helping to give insight in a complex matter

Spectrum Policy is part of the Digital Agenda for Europe:

http://ec.europa.eu/information_society/digital-agenda

