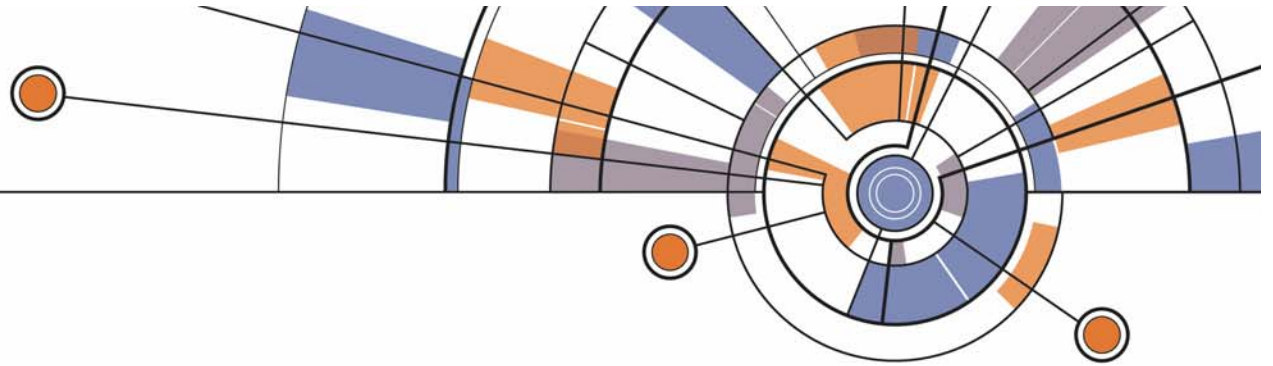


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Session II: Future uses and change factors

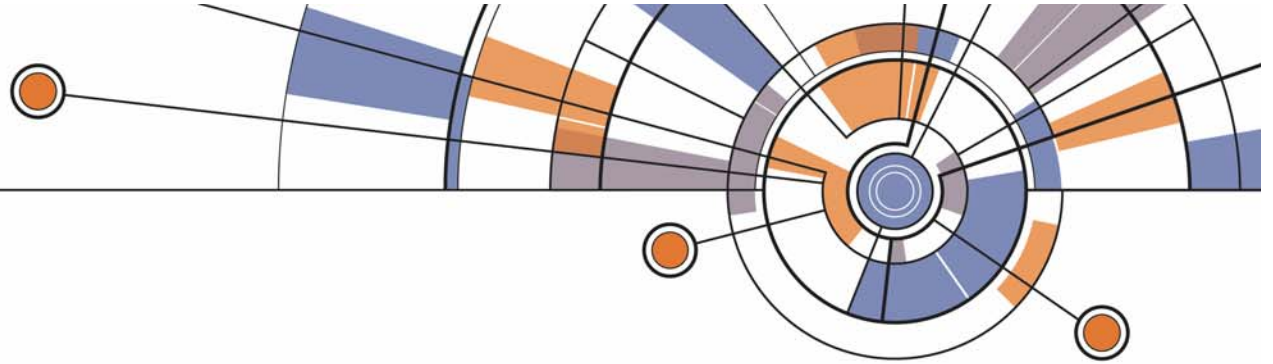
Chair: Richard Marsden, DotEcon

European Spectrum Management Conference 2006

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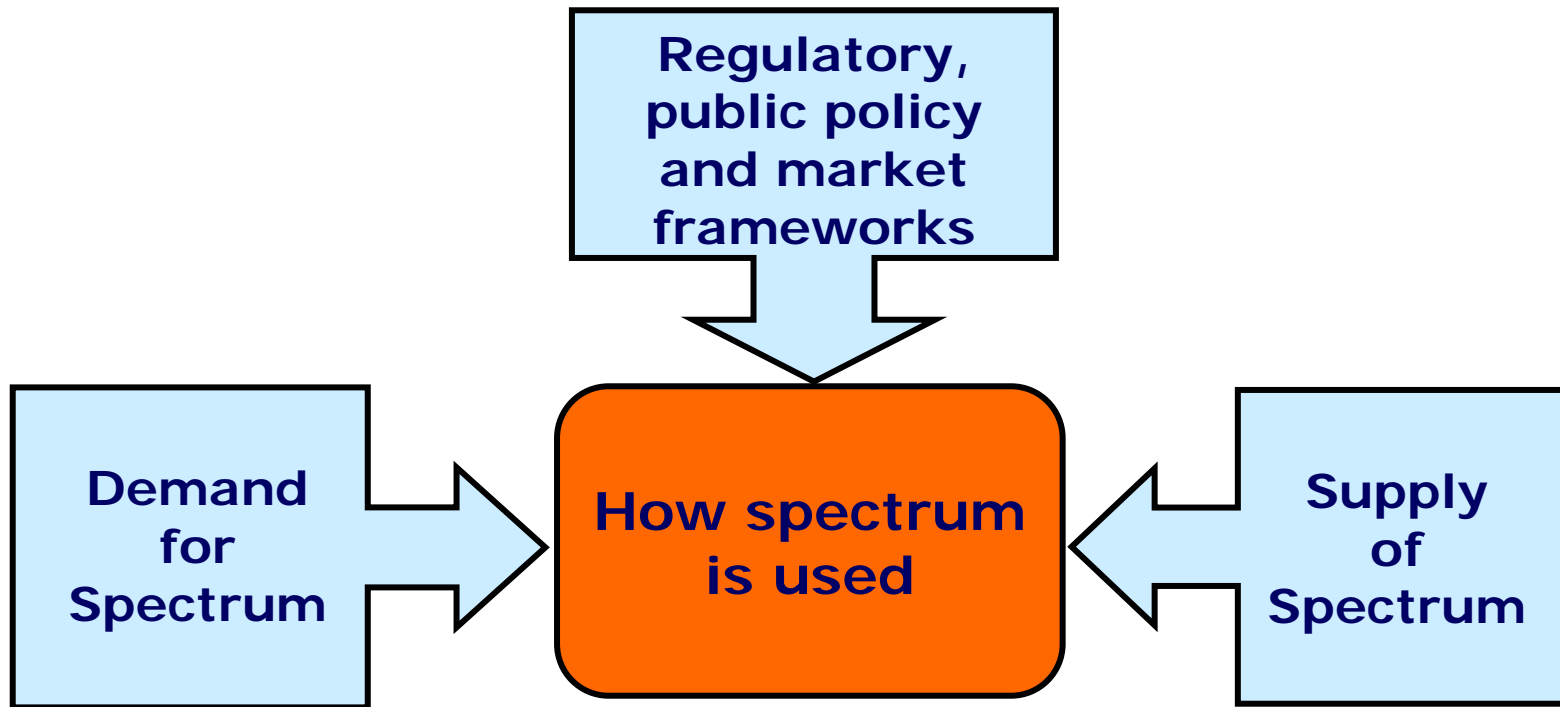
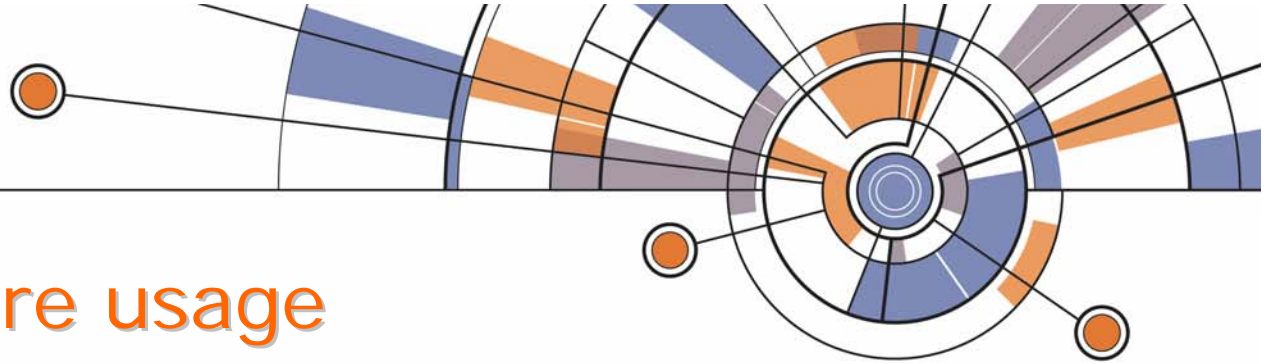
DotEcon



- Economic consultancy specialising in network industries
- Particular expertise in economics of radio spectrum, based on:
 - Modelling economic benefits from licensed and unlicensed use
 - Applying market mechanisms to spectrum management: trading, liberalisation, auctions, incentive pricing
 - Designing spectrum auctions and advising bidders
- What we have done recently:
 - Reports for EU & NITA (Denmark) on secondary trading
 - Designing spectrum auctions in UK, Denmark & Norway
 - For Ofcom: work on allocation options for 2G spectrum, UHF & 2.6GHz, and value of UWB

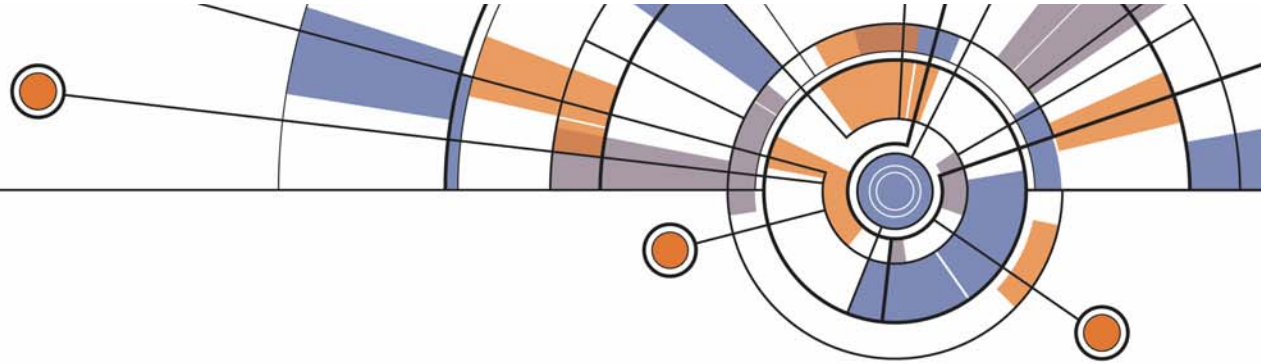
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Drivers of future usage



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Demand



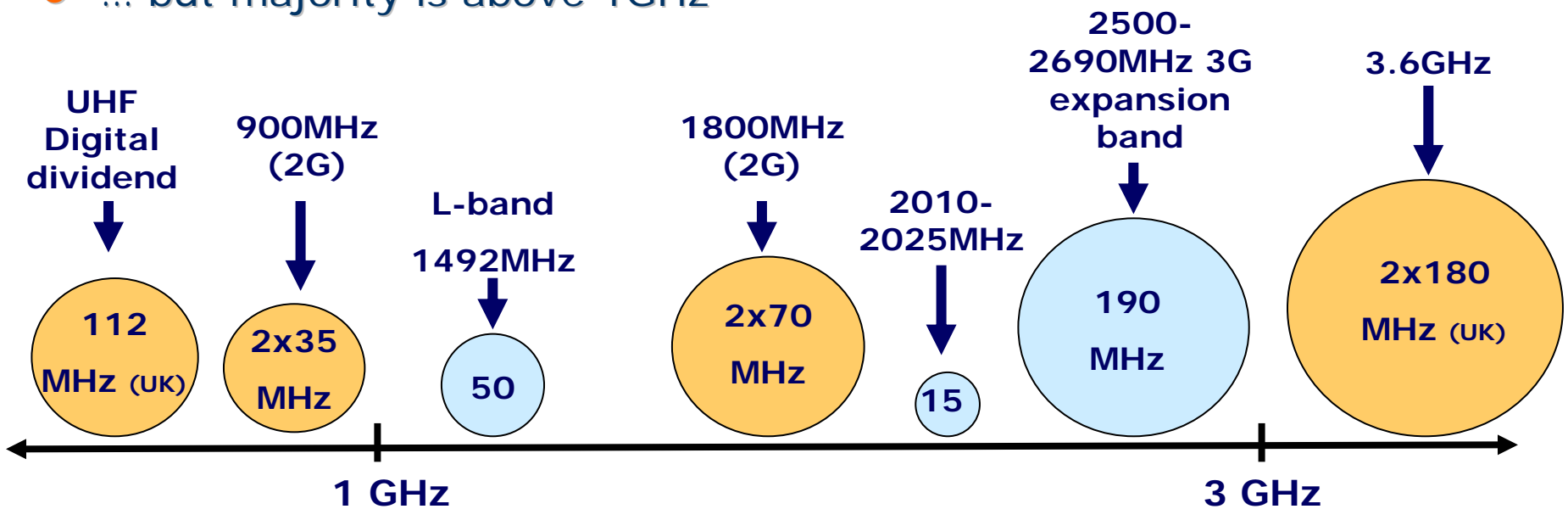
- Growing demand for spectrum, especially below 1GHz:
 - to provide new services
 - e.g. Mobile TV, mobile broadband, HDTV
 - to enhance existing service (expand coverage, capacity and quality of service)
 - e.g. More DTT, enhancements to 3G

- New technologies allowing more efficient use of spectrum
 - Enhancements to existing technologies
 - e.g. MPEG-4 for DTT, HSDPA for 3G mobile
 - New approaches allowing co-existence
 - e.g. UWB, cognitive radio

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Supply

- Historically supply of spectrum artificially constrained
- New trend towards releasing 'spare' spectrum to market
- Unprecedented large releases of spectrum over next 5-10yrs in Europe...
- ... but majority is above 1GHz



○ Generally available now across EU

● Availability subject to decision on existing uses

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Regulatory / market framework

- New policies to encourage efficient use:
 - Auctions to allow market to decide primary assignment
 - Liberalisation to allow market to decide use and changes of use over time
 - Trading to allow market to decide users and change of users over time
 - Incentive pricing to encourage public sector users to release under-utilised spectrum
- Regulatory / public policy intervention only when concerns about market failure
- Emphasis on market-led harmonisation rather than regulated standards

Some questions for discussion

- Will the combination of new spectrum releases and a more flexible framework be sufficient to meet rising spectrum demand?
- What about below 1GHz?
- To what extent can secondary markets deliver efficient allocation over time, especially with indefinite licences?
- Can the market deliver harmonisation where there are European economies of scale and network benefits?
- Could new technologies, such as cognitive radio and UWB, transform the way we use spectrum? If so, under what timescale?
- Do we need more unlicensed spectrum and how do we reconcile this with the trend towards de facto 'property rights' under market mechanisms?
- Can we ever claw back unlicensed spectrum?