

Spectrum Management in a Liberalised Telecommunications Environment

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Agenda

- The impact of liberalisation on the telecommunications market
- The knock-on effects for spectrum management and how does it change the method of working
- What does a spectrum manager need to deal with these effects?
- Is there a better way?

The impact of liberalisation on the telecommunications market

- An increase in the number of operators and hence the amount of competition
 - Decreasing costs
 - Increasing demand
 - A sink for latent demand
- A move away from incumbent driven service offerings to more dynamic, customer driven services
- Rapid roll-out of new services
- Overall:
 - **MORE and BETTER!**
 - **FASTER!**
 - **CHEAPER!**

The knock-on effects for spectrum management

- A greater demand for radio spectrum, particularly:
 - Fixed links for carrying traffic in new or expanding networks
 - Point-to-Multipoint for fixed wireless access
 - Cellular services for mobility
- Everyone wants access.....conflicting requirements
 - Amongst commercial telecommunications services and versus other uses
 - One technology versus another (GSM/CDMA/DECT/3G)
- More decisions to be made in an increasingly active market
- Shorter timescales for decisions
 - So as not to encumber the development of the market

What regulatory support does a spectrum manager need to cope?

- A telecommunications or radio communications law which clearly gives the regulator the rights to manage the radio spectrum:
 - issue licenses: various methods as appropriate
 - deal with license infringements and interference: monitor use and act accordingly
 - revoke licenses: not only for infringement but also to enable change of user/uses
 - set tariffs: charges to recover costs and fees in the event of scarcity
- A clear, forward-looking, policy on spectrum usage
 - To assist with making and justifying decisions where conflicts occur
- An established National Frequency Allocation Table
 - To ensure that frequency allocations and assignments fall within a published framework
- A well defined process for migration and re-farming of users
 - To clear spectrum for new user/uses
 - To deal with large blocks allocated to incumbent users (PTO, Military)
- A type approval scheme for radio terminals
 - To ensure all radio equipment operates with known technical characteristics
 - Published technical specifications which focus on effective use of radio spectrum

What resources are needed in the spectrum manager's armoury?

- Spectrum Engineering Tools – Software
 - To maximise frequency sharing and re-use (and hence spectral efficiency)
 - To control interference (between co- and adjacent- band users)
 - To plan complex assignments (e.g. fixed links)
- Spectrum Monitoring Tools – Hardware/software
 - To monitor the use of spectrum and investigate under-used and congested bands
 - To resolve interference complaints
 - To enforce licence regime: licensed as well as unlicensed use

BUT MOST OF ALL: HIGHLY TRAINED STAFF

However.....

- So far it has mostly been about CONTROL of spectrum use.

BUT if the full benefits of liberalisation are to be realised:

- Spectrum manager should create an environment in which competition is able to flourish.
 - OK so far as ‘controlled’ competition has been ‘created’ under such regimes.
- Spectrum manager should facilitate innovation.
 - To what extent can this happen under traditional spectrum management regimes?

Who should pick the winners?

- Spectrum managers decide what uses are allowed: ITU/Regional
- Spectrum harmonisation: Once harmonised it is hard to change agreed use
- Story of ERMES....
- Is the spectrum manager best placed to decide which technologies or uses of the radio spectrum will succeed?
- Current spectrum management regimes are good for ensuring technical efficiency of spectrum use, but what about economic efficiency?
- What about the freedom to innovate under liberalisation?

Let the market decide!

- Current spectrum licensing is too restrictive: specifying both the use and technology allowed.
- What if licensees could decide what use and what technology to deploy? – innovation would be given wings!
- Users of some spectrum should be able to trade spectrum directly with other spectrum users (sell, swap and maybe lease?).
- Market will decide what are the most economically efficient uses of the radio spectrum – the market will pick the winners!

Might a liberalised telecoms market be best served by liberalised spectrum management?



Discussion