



Centre on Regulation in Europe
Improving network and digital industries regulation

Where is spectrum management headed in Europe?

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1. Background

The aim of this CERRE seminar is to escape today's preoccupations about spectrum management in Europe and ask what might change over the next ten or twenty years and what we in Europe should be doing now to prepare for those changes.

The past twenty years have seen significant changes in the way that radio spectrum is managed by public authorities in Europe, particularly in relation to the spectrum allocated to the mobile communications industry. But other aspects have remained largely unchanged.

We have seen the adoption of spectrum auctions by many Member States to ensure that spectrum is assigned to the highest bidder rather than by administrative decision. Efforts have also been made to promote the trading of spectrum between operators without the involvement of public authorities, and to use administrative pricing to encourage public users of spectrum to value it properly and release what they do not need. At the same time, public authorities in Europe have continued to use their control of spectrum to influence how competition has developed in many markets, often allocating exclusive rights to some users and restricting access for others. Most Member States remain reluctant to grant users exclusive rights over spectrum for very long periods, preferring instead to retain the capacity to influence how the market develops by periodically reassigning spectrum licences.

A large amount of spectrum has been reallocated from other spectrum users, notably broadcasters, to the mobile communications industry over the past twenty years. However, in many other sectors the same frequencies continue to be used by the same users. European authorities have consistently emphasised the importance of co-ordinating the allocation and release of spectrum within Europe, particularly for mobile and satellite applications. This tendency to combine spectrum management with industrial policy in Europe stands in contrast to the approach adopted by the US authorities, who have tended to prioritise the allocation and early release of spectrum to mobile operators without seeking conditions as to how it is to be exploited or waiting for the development of standards.

It seems likely that the focus of spectrum management in Europe will change further over the next twenty years. It is possible, for example, that entirely new approaches, such as the reverse auction recently used in the United States, could be used to allow users themselves to determine how much spectrum should be allocated between them. Current assumptions about the need for co-ordination between Member States may also need to be revisited if new mobile communications technologies challenge old assumptions about the benefits of standardisation or the importance of economies of scale. For example, the assumption that the mobile communications industry needs to move forward together in co-ordinated steps, or that these steps must be co-ordinated by public authorities, may no longer be appropriate if new technologies allow for greater heterogeneity of use in future - or if suitable new spectrum is simply no longer available.

Long standing assumptions about how existing spectrum is to be assigned between users may also come into question. Many of today's fixed-term exclusive licences will expire at various points in the



future, prompting questions about whether they should be reassigned to the existing users on similar terms, or whether a completely different approach to assignment might be preferable. Today's European regulatory framework for spectrum already involves a presumption in favour of 'non-exclusive' licensing but this has had little influence on the licensing of spectrum to many users, including mobile communications providers and broadcasters (where attempts to promote 'white space' applications have met with little success).

Recent developments in 'shared spectrum' technologies and in database management to support 'dynamic spectrum access' may, however, create new opportunities for 'non-exclusive' spectrum assignment models in future. These could take several forms. In one version, a licensee could sub-lease parts of its licensed spectrum to other users (a practice which the proposed European Electronic Communications Code is already seeking to promote). However, in this case questions arise as to whether the incumbent licensee will wish to sub-lease spectrum to a potential competitor.

In another, one licensee is granted a licence which does not fully exhaust the potential of the spectrum concerned – for example, not all the spectrum may be required by the licensee or it may not be required continuously or over the full geographical area for which it is assigned. In these circumstances, an 'overlay' licence can be issued, which entitles the holder of that licence to use any spectrum not exploited by the first. As Thomas Hazlett, an advocate of this approach, explains:

“Incumbent interests are untouched. But the new rights enable bargains tapping fresh collaborative energies. Entrants and incumbents are able to explore options for rooting out existing rigidities, unleashing higher valued services. If they can spy such opportunities, and then craft an agreeable split of the gains from trade, they walk away happy. Contentiousness over shifting spectrum use becomes a game to create lucrative innovations.”¹

Other examples of trials which involve the dynamic sharing of spectrum between public and private sector users include the Citizens Broadband Radio Service (CBRS) initiative in the United States, which allows spectrum that is assigned to ship-borne military radars which are only active in coastal regions to be shared with other civilian users who can obtain a 'priority access license' which provides some certainty both in terms of availability of spectrum and protection from interference, as well as with a third tier of users who obtain 'general authorised access'. Finding ways to better exploit the large amounts of spectrum currently held by public sector users is likely to be an important challenge for spectrum managers in the next twenty years.

These kinds of non-exclusive licensing models would represent not only a radical departure from today's approach to spectrum management, but would have disruptive consequences - which might or might not be beneficial - for the structure and competitive dynamics of communications markets in Europe. Alternatively, exclusive licences might be renewed without limitation in future, in which case today's market structures and competitive dynamics might be more likely to be perpetuated into the future. In either case, the opportunities which spectrum management currently provides to public authorities to influence the development of communications markets might be significantly

¹Thomas W Hazlett, *The Political Spectrum*, Yale University Press, 2017, pp 278-9.



curtailed. Any significant transfer of spectrum rights from public sector to commercial users would also represent a significant retreat by public authorities.

The history of spectrum management in Europe over the past twenty years suggests that change is slow but that the unthinkable can eventually come to pass. This CERRE seminar is intended to provide an opportunity for participants to consider whether the next ten or twenty years will see changes to the existing model of exclusive licensing of spectrum for mobile communications within a broadly unchanged industry structure, or whether more radical changes might be contemplated.

The seminar will be conducted as the European Commission's most recent proposals to reform spectrum management in Europe are being finalised. Many of these proposals might be regarded as an attempt to make the existing spectrum regime work better, rather than being an attempt to replace it with something else. For example, the Commission's proposals do not challenge the existing European paradigm of assigning exclusive licences to spectrum users for finite periods as part of a co-ordinated European management plan, and appear unlikely to herald a significant shift towards sharing.

The debate which has followed the publication of the Commission's proposals has also felt familiar. Disagreements generally relate to questions of who administers the existing regime rather than because the approach to exclusive licensing or other aspects of spectrum management are being fundamentally questioned.

2. Questions for discussion

The aim of the CERRE seminar is to challenge some of these assumptions. Is there a risk that European policymakers find themselves spending the decade trying to improve a spectrum management model which, even if they succeed, will no longer be relevant? Efforts to improve the process of auctioning spectrum presuppose that there will continue to be a need to auction significant quantities of spectrum on an exclusive basis. The debate on extending licence terms assumes that exclusive licences should continue to be assigned and periodically reassigned. These are the assumptions which seminar participants will be asked to consider.

Other questions which the seminar will seek to address include:

- How well has today's spectrum management approach served Europe over the past twenty years? What is the appropriate benchmark against which to make such an assessment? Where has it failed and where has it succeeded?
- How do we promote innovation in spectrum management? Who should lead – public authorities or spectrum users?
- How will the spectrum requirements of different groups of users change over the next twenty years? How will spectrum management policies need to change in order to respond?



- What will be the impact of technology? How will technology change utilisation opportunities/valuation of different types of spectrum? How will the evolution of TV impact spectrum requirements?
- How do today's spectrum management policies address use by the public sector? How would a significant reallocation of spectrum between the public and private sector be initiated? Is it required?
- Should spectrum management be used to influence industry structure and the development of competition in downstream markets? Should spectrum policy drive industry structure, or vice versa? What are the alternatives to the current approach?
- What are the costs and benefits of retaining exclusive licences for key users, such as mobile communications? What are the alternatives?
- How can we improve the flexibility of exclusive licensing arrangements (private trading, perpetual licences, more flexible spectrum usage rights?)
- How would non-exclusive licensing be introduced more extensively? How would co-existence work? What are the risks as well as potential benefits?
- What other licensing arrangements might emerge (Dynamic spectrum access/sharing; TV 'white spaces'; enforcement challenges)?
- What institutional changes would be required in order to achieve a fundamental change in the licensing paradigm in Europe? How are incumbent interests to be weighed up?
- Do the proposed amendments in the EECC allow for the introduction of radical changes (e.g. to shared spectrum), or would further legislative changes be required?
- What can Europe learn from other regions that would improve spectrum management in future? Will there be a need for regional/global coordination in future?