



Munich Personal RePEc Archive

The Road to More Flexibility in Spectrum Usage and Access: Are We There Yet?

Gérard Pogorel

COMMUNICATIONS & STRATEGIES

December 2006

Online at <https://mpra.ub.uni-muenchen.de/3569/>

MPRA Paper No. 3569, posted 15 June 2007

The Road to More Flexibility in Spectrum Usage and Access: Are We There Yet?

G rard POGOREL

Ecole Nationale Sup rieure des T l communications, Paris

Abstract: In the spectrum sections of its "Proposed Changes" to the Review of the European Union Regulatory Framework for Electronic Communications Networks and Services, the European Commission establishes a coherent, comprehensive and original set of forward-looking spectrum policy principles. By emphasising the role of trading and market flexibility, technology and service neutrality, it departs from traditional, administrative spectrum management principles. But by stressing the need for a clear justification of exclusive usage rights, it differentiates itself from market-fits all propositions. Three issues should be examined to understand what kind of evolutions could occur: the prevention of interferences, harmonisation and standardisation, and lastly the weight of institutions. Technical progress in wireless, culminating in extended dynamic access, will mostly complement market mechanisms in fostering the efficient use of spectrum, as long as institutional factors do not interfere (barriers to entry) or are removed.

Key words: Spectrum usage, Spectrum management, Spectrum policy, radio interferences, audiovisual policy.

In the spectrum sections of its "Proposed Changes" ¹ to the Review of the European Union Regulatory Framework for Electronic Communications Networks and Services, the European Commission establishes a coherent, comprehensive and original set of forward-looking spectrum policy principles. By emphasising the role of trading and market flexibility, technology and service neutrality, it departs from traditional, administrative spectrum management principles. But by stressing the need for a clear justification of exclusive usage rights, it differentiates itself from market-fits all propositions from overseas.

¹ Brussels, 29.6.2006 COM(2006) 334 final, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, on the Review of the EU Regulatory Framework for electronic communications networks and services.

This paper focuses on what remains to be clarified and what roadblocks must be circumvented for this framework to be properly implemented and provide the positive results that can be expected.

Only a minority of EU member states have already embraced the flexibility through market perspective. The majority still think three issues justify preserving the status quo, or only minor departures from it. Those issues are:

- the prevention of interferences,
- the prevalence of harmonisation and standardisation,
- the overarching weight of institutions.

Those issues translate into general policy principles, which have to be surveyed in conjunction with critical industrial choices, not foreclosing more long-term technology considerations, and their impact on spectrum usage and management.

To begin with, the Commission makes it clear (*ibid.* p. 12) that:

"[...] to require that the granting of exclusive usage rights on the basis of individual licences [must] be subject to clear justification that the risk of harmful interference cannot be managed in another way".

The problem is that a clear and comprehensive view of interference prevention, what is possible and what is not, based on existing and future probable technologies, is still lacking. Status quo proponents have a field day arguing that a structured frequency allocation is needed, as no wide-ranging tested alternative has been demonstrated. As long as the interference issue has not been settled, this will remain a major roadblock obstructing the concrete application of the framework and confining it to the level of abstract management principles.

Let us consider harmonisation and standardisation (H & S) issues. The principle of technological neutrality in the "Proposed Changes" (3.1 p. 13) is subject to limits like avoiding harmful interferences. Additional exceptions, "would need to be strictly justified on the basis of a limited number of legitimate general interest objectives". The words harmonisation and standardisation do not even appear in the paragraph. In the past, however, harmonisation and standardisation have been at the root of the major successes of EU initiatives. Many in the industry and EU governments, consider that the road should not be closed to such initiatives in the future. The absence of reference, in general or by name, to such possibilities, appears to be a crime de lese-majesté to those who think that it is in the

interest of the European industry to harmonise and standardise. The Commission's proposition regarding spectrum appears, in this respect, to be a complete reversal in attitude, which neglects what has made the European industry successful. The industry's posture would seem more realistic if it had come up with credible plans for future technologies in need of H & S, and not only for preserving and erecting barriers around existing ones. Yet the Commission's case would be even stronger if it were able to identify – even restrictively – areas for H & S, and having achieved this, leave the rest to technology neutrality.

Let us not forget that the Commission is also constantly confronted by issues of an institutional nature. The most notable example is provided by the audiovisual industry, and its dealing with the onslaught of telecoms players on TV on mobile.

The audiovisual and telecoms industries both have an eye on the hundreds of millions of paying customers to be reached by TV on mobile terminals, and on the revenue stream that they may generate. However, the telecom industry feels fairly constrained in its spectrum occupancy in that respect, both in terms of bandwidth and ever-higher frequencies. Telecom players would be willing to consider the more amenable TV frequencies fair game for their TV on mobile developments.

This leads us to the definitely long-term considerations. The excessively repeated invocation of spectrum "scarcity" actually reflects three sets of limiting factors.

Firstly, our technical ability to use spectrum efficiently. Technologies have made enormous progress in recent years, driven both by the economic necessities of the extension of commercial spectrum usage and by the hugely increased data transmission and integration needs of the military. Spectrum sharing has been a reality for a while, as has dynamic access (in GSM for instance). It will expand, as will software defined and cognitive radio, culminating 10-15 years from now, in an extension of dynamic access to ever-larger bands and across technologies and services. Technical limiting factors will never completely disappear, but spectrum efficiency should be hugely improved.

Secondly, administrative and economic institutions, how usage rights, in the form of property rights or not, are assigned and handled, can also be more or less efficient, and this constitutes a limiting factor. It appears, and this lesson has been learnt at a high price, that market mechanisms, under

the watch of public interest, public goods and competition monitoring, are most often more efficient than administrative mechanisms. Competition monitoring here includes provisions that barriers to entry which are impossible to surmount are not created by the assignment processes themselves. Economically driven players will have an incentive to use spectrum efficiently, unless institutions allow them do otherwise. It would be naïve to forget, based on our experience of human and corporate behaviour, that once exclusive property rights are established, they will be all the more harshly defended at an institutional level, that they are not economically justified. Consequently, and as a matter of efficiency and realism, every time that a "sharing" or "open spectrum" solution of any kind seems technically feasible, it should be preferred to any other solution.

Like technology, but subject to slower processes, administrative and economic institutions also make progress. Vast and notable change processes have been cleverly handled: spectrum re-farming and relocation operations have been efficiently and quietly carried out. Technical neutrality is no longer a rarity in newly issued authorisations. Service neutrality is making a closely watched appearance, while trading is being progressively introduced. Spectrum institutions, however, are anxious not to disrupt the delicate functioning of the huge and complex multiple operations of wireless devices and services. Some spectrum agencies may perhaps be more optimistic than others in their administrative and technical ability to navigate the seas, once the Pandora's box of market winds has been opened. However, the point is that a process has been launched. Flexibility is on the way, and will undoubtedly gain momentum as the outcome of the whole set of "flexibility" tools being implemented is observed and assessed. The next steps of spectrum management evolution will be determined not by ideology or reference to theoretical principles, but by experience.

Third and lastly, broader, society level, institutional factors are to be considered. For the sake of brevity, let's cite an example from large spectrum holders. The arguments put forward by TV channels for large and near-free spectrum holdings include the role they play in social and cultural diversity and their general interest obligations. These are strong requirements to be respected. Yet it remains to be seen whether this will be enough to retain their whole frequency domain in the digital transition. Past governments have been able to exert more leverage on the powerful Houses of Television than expected, as seen in the earlier stage of analogue to digital transition. Yet whether this leverage will be enlightened, rational, and powerful enough to examine the social role, and general interest obligations of television – and, consequently, to define the conditions and extent of its

legitimate access to spectrum – is hard to tell. In this process, a global view of the multiple diffusion channels on fixed sets: digital terrestrial, DSL, cable, satellite, would definitely be called for and can be suggested, but this is a very long shot.

At a policy level, the spectrum community will then consider the outcome of the Electronic Communications Review, and how far the Commission, which has made Spectrum a central issue, will have been able to exert its leverage to implement its trading and liberalisation agenda. The Constitutional Treaty failure has not created a favourable background for strong Community initiatives, and the Commission is fighting uphill battles in many areas. The morose economic environment and low average growth in many big EU member states favour defensive postures where dynamic impulses are, in fact, needed. Notwithstanding, the Review and subsequent revised Framework Directives will represent a step forward in the direction of a simpler, streamlined, environment for communications services of all kinds. The revision of ICT policy principles is expected to climax in autumn 2006 and the resulting platform should then be expected to be in place then for a while until major shifts occur at political level (fresh momentum for the Union?) or economic level (a new growth cycle?).

To conclude, it appears technical progress in wireless, culminating in extended dynamic access, will mostly complement market mechanisms in fostering the efficient use of spectrum, on the condition that institutional factors do not interfere (barriers to entry) or are removed. In this sense, there is a good chance that the curse of spectrum scarcity can be lifted or alleviated, with the notable consequence that speeches on spectrum will have to find another opening argument.