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Conference Paper

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20th ITS Biennial Conference, Rio de Janeiro, Brazil, 30 Nov. - 03 Dec. 2014: The Net and the Internet - Emerging Markets and Policies

Provided in Cooperation with:

International Telecommunications Society (ITS)

Suggested Citation: Massaro, Maria; Bohlin, Erik (2014) : Is the European Union moving towards a strategic development of radio spectrum policy? A review of the Connected Continent legislative proposal, 20th ITS Biennial Conference, Rio de Janeiro, Brazil, 30 Nov. - 03 Dec. 2014: The Net and the Internet - Emerging Markets and Policies, International Telecommunications Society (ITS), Rio de Janeiro

This Version is available at:

<http://hdl.handle.net/10419/106888>

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Is the European Union moving towards a strategic development of radio spectrum policy? A review of the Connected Continent legislative proposal

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Abstract

The new smartphone era is challenging the leading position the European Union (EU) has been occupying in the mobile economy, falling behind other economies such as the United States and some countries in the Asia-Pacific region. The EU acknowledges the fragmented structure of the electronic communications market as being one of the main obstacles to LTE deployment.

The EC argues that a main source of fragmentation is lack of harmonised conditions governing the use of radio spectrum across the EU. The EU member states have developed different and sometimes conflicting radio spectrum management practices through time. A consequent drawback is the impossibility of providing wireless broadband services across national borders and of deploying the necessary wireless networks and radio equipment.

In consequence, on 11 September 2013, the European Commission put forward a new legislative package for a “Connected Continent: Building a Telecoms Single Market” which contains several reforms directed to create a single telecommunications market. Some of the proposed reforms would partly modify the existing regulatory system of the radio spectrum, introducing harmonised conditions governing national assignment procedures.

Through a document analysis and selected experts interviews the paper attempts to assess whether the EU is moving towards a strategic development of radio spectrum policy by looking at the EU initiatives on radio spectrum since the beginning in 1987. Then the focus is narrowed down to the Connected Continent legislative proposal, to value its contribution to the harmonisation of national assignment procedures.

The historical overview of the EU radio spectrum policy shows that the EU has gradually acknowledged the negative implications of national fragmented and inconsistent radio spectrum governing rules. The EU has become aware of the need for a long-term strategy for the planning of the use of radio spectrum for the creation and functioning of the EU internal market.

However, the paper also claims that in the arduous process of harmonisation of radio spectrum use much has still to be accomplished. Furthermore the paper draws the conclusions that the radio spectrum reforms contained the Connected Continent legislative proposal are probably not the means by which the harmonisation of radio spectrum use for the completion of the internal market can be enhanced. The EU and the EU member states have remarkably diverging and conflicting views on the content of the EC proposed reforms. The EU member states are unwilling to give up on their prerogatives on the radio spectrum by accepting too intrusive harmonised measures.

1. Introduction

The European Union (EU) has been a leader of the mobile economy with an outstanding deployment of second (2G) and then third (3G) generation mobile services. Since the late 80’s, successful policies have been adopted for the process of liberalisation of the EU telecommunications sector and for the

settlement of the GSM-based mobile communications system (Michalis, 2007). However, the new smartphone era is challenging the leading position the EU has been occupying since then, falling behind other economies such as the United States and some countries in the Asia-Pacific region (Bohlin et al., 2013). The EU seems unable to move on towards next (4G) generation LTE networks, which are needed in order to support the extensive growth of mobile data traffic.

A main factor, among others, which has contributed to the relatively insufficient EU performance in terms of LTE deployment, is market structure. The fragmented structure of the electronic communications market prevents it from exploiting economies of scale and scope and network effects, hampering investment and innovation in services and infrastructures (Bohlin et al., 2013). For this reason, on 11 September 2013, the European Commission (EC) put forward a new legislative package for a “Connected Continent: Building a Telecoms Single Market”, which is aimed at reforming the existing regulatory framework for the telecommunications market, by introducing reforms directed to create a single internal market (COM(2013) 627).

The EC argues that a main source of fragmentation is lack of harmonised conditions governing the use of radio spectrum across the EU (SWD(2013) 331 final). In this regard, it is important to make a clarification on the concept of harmonisation. In fact, two types of harmonisation can be distinguished. A first top-level of harmonisation regards the allocation of radio spectrum to certain uses, meaning that specific radio spectrum bands and technical conditions applied to these radio spectrum frequency bands to avoid interference are harmonised at EU level. In this regard, with the adoption of the Radio Spectrum Decision in 2002 the Radio Spectrum Committee (RSC) has been set up. Top-level harmonisation measures are adopted thanks to the work undertaken by this Committee, where the EU member states sit together. The RSC develops technical conditions for the use of a specific radio spectrum band that are then included in what are called “implementing decisions”. Several implementing decisions have been formulated for the allocation of radio spectrum bands for wireless broadband. Harmonised EU band for wireless broadband are: 800 MHz, 900 MHz, 1.8 GHz, 2GHz paired, 2.6 GHz, 3.4-3.6 GHz and 3.6-3.8 GHz (COM(2014) 536 final). This is a well-established cooperation mechanism between the EC and the EU member states and this is the reason why this type of harmonisation is not an issue in the EU.

The second type of harmonisation regards instead the assignment of radio spectrum frequencies to users. This is a distinct level of harmonisation because unlike allocation, the assignment of radio spectrum frequencies is a national responsibility. Radio frequencies or radio frequency channels within each allocated radio spectrum band are assigned to specific individual users by means of national authorisations (Radio Regulations 2012). National regulatory Authorities (NRAs) decide on the conditions that are attached to the national award procedure (e.g. spectrum caps) and to the actual licenses that are awarded (e.g. the duration of a licence). Now in fact, the conditions mentioned earlier vary quite a lot from country to country. Since its world leading 2G position, the EU has been unable to set common criteria to be used by NRAs when assigning radio spectrum. Thus, different and sometimes conflicting national rules have emerged. A consequent drawback is the impossibility of providing wireless broadband services across national borders and of deploying the necessary wireless networks and radio equipment. For this reason, with the Connected Continent legislative proposal, the EC aims to solve this issue - the lack of harmonised conditions governing national assignment procedures, by partly modifying the existing regulatory system of radio spectrum.

Against this background, the paper provides a historical overview of the EU initiatives on radio spectrum policy, since its origins in 1987. The paper attempts to show how the EU has gradually acknowledged through the years the negative implications of fragmented and inconsistent radio

spectrum governing rules across the EU member states, in particular for the establishment and functioning of the internal market. Ultimately, the paper intends to ascertain whether the latest radio spectrum reforms contained in the Connected Continent legislative proposal would actually prompt the harmonisation of radio spectrum use for the completion of the internal market. To this aim, a document analysis is conducted. The historical overview is built upon the main EU deliverables published by the European Commission (EC), the European Parliament (EP) and the Council of the European Union (the Council). The discussion upon the Connected Continent legislative proposal is drawn from the EP draft Resolution and the Council interim Report, following the EC proposed Regulation, and the opinions expressed by the Body of European Regulators of Electronic Communications (BEREC), together with other stakeholders' position papers. Moreover selected experts interviews substantially contribute to the paper.

The entire discourse is framed by the so-called process of Europeanisation of the EU member states. The term Europeanisation is used in research to describe different phenomena and processes of change that take place in the European context (Olsen, 2002: 921). Europeanisation is a two-way process, in fact there are both bottom-up and top-down influencing flows between European and national institutions. The bottom-up flows refer to the establishment of European institutions, as a set of distinct supranational institutions. On the opposite, the top-down effects of Europeanisation are depicted as the impacts of European institutions on national institutions and political structures (Börzel, 2002: 193). The focus of the paper is restricted to the top-down process of Europeanisation. Moreover, this study takes into consideration only the effects of Europeanisation within the EU, without, however, denying the existence of cross-border influences (Cowles et al., 2000). In particular, the paper focuses on the role that national institutions and prior path of policy development play as filters of European initiatives, facilitating or hindering national adaptation.

The choice of analysing the evolution of EU radio spectrum policy within the process of Europeanisation is motivated by the red thread in Europeanisation studies that national institutions and practices can have significant impact on the way European initiatives affect national contexts (see e.g. Goetz & Hix, 2001). In reality, national institutions may often prevent or slow down national adaptation to European requirements.

In recent years the number of studies on Europeanisation has been growing, however none of these studies focuses on radio spectrum policy. Now that the process of Europeanisation of radio spectrum policy is at its pick, it is important to understand how national institutions respond to the EU pressure for more radio spectrum harmonisation. This is key for overcoming the fragmented structure of EU electronic communications market, since the lack of harmonised conditions governing the use of radio spectrum across the EU is recognised as being one of the main sources of fragmentation.

From a theoretical point of view, the paper refers to the concept of path-dependency to describe the national inertial response to the process of Europeanisation of radio spectrum policy. In general, public policy follows a country-specific path in its process of diffusion and adoption, where the legacy of years of previous regulation, which varies greatly from country to country, exerts long-standing effects on national practices and influences national outcomes in unique ways.

The paper is structured as follows. In Section 2 the concept of Europeanisation is introduced in relation with the concepts of institution and path-dependency. Then, an existing conceptual framework formulated to explain the general process of Europeanisation is applied and adapted to the policy area of radio spectrum. In Section 3 the historical evolution of radio spectrum policy in the European Union (EU) is illustrated. Four phases have been identified, focusing on the growing commitment of

EU institutions in harmonising radio spectrum use across the EU. The attention is particularly directed to the last phase centred on the EC's radio spectrum reforms contained in the Connected Continent legislative proposal. In section 4 the conclusions are drawn.

2. The process of Europeanisation and the path-dependence in policy-making

2.1. The concept of Europeanisation

Since the mid-1990s, the concept of Europeanisation has been subject of an extensive and growing number of studies. There is still no single shared definition of Europeanisation (Bulmer & Radaelli, 2004: 3), rather different phenomena and processes of change have been investigated under the umbrella of Europeanisation (Olsen, 2002: 921). However an acknowledged conceptualisation of Europeanisation is the one made by Börzel (see e.g. Bulmer, 2007: 48). Europeanisation is described as a two-way process, in fact there are both bottom-up and top-down influencing flows between European and national institutions. The bottom-up flows contributes to the establishment of European institutions, as a set of distinct supranational institutions. On the opposite, the top-down effects of Europeanisation are depicted as the impacts of European institutions on national institutions and political structures (Börzel, 2002: 193). As an alternative, Olsen (2002: 921-952) has sorted the different phenomena of Europeanisation in five categories: EU enlargement; development of European-level institutions; domestic impact of European-level institutions; diffusion of European institutions in the rest of the world and creation of Europe as a unified political entity.

Instead, Bulmer & Radaelli (2004) have investigated how the process of Europeanisation takes place, identifying three main pathways. Firstly, Europeanisation can be the result of negotiations between European and national institutions (p. 5). EU countries "upload" national policy models to the European-level negotiations from which emerges the European policy (see also Börzel, 2002). Secondly, in policy areas where European institutions have great power, Europeanisation can be the outcome of impositions from the EU level. Bulmer & Radaelli have distinguished between "positive integration" which requires national adoption of a supranational policy and "negative integration" which, instead, requires the removal of national specific rules (p. 6). On the contrary, when national governments have great power, Europeanisation occurs if EU member states are able to reach an agreement, European institutions being mere facilitators of the dialogue. In this case Europeanisation takes place on a voluntary basis (p. 7). Similarly, Knill & Lehmkuhl (2002: 255-280) have made an analytical distinction between three mechanisms of Europeanisation: institutional compliance, changing domestic opportunity structures, and framing domestic beliefs and expectations. The first mechanism is associated to the concept of "positive integration", while the concept of "negative integration" is the heart of the second mechanism. Conversely, the last mechanism comes about when the process of Europeanisation aims to build up national support for European goals, spreading more symbolic norms and beliefs.

Cowles et al. (2001: 6) have also contributed to exploring the process of Europeanisation, proposing a conceptual framework built upon the notion of "goodness of fit" as explanatory variable of domestic change. The goodness of fit refers to the degree of compliance between European and domestic institutions. In case of "fit" between European and national institutions, Europeanisation takes place in a smooth way, as EU requirements can be easily incorporated at national level, without considerable changes at the domestic structure. On the contrary, in case of "misfit" between European and national institutions, domestic adaptation to EU requirements is challenged by national resistance to change, which can be overcome only by strong EU pressure on national institutions (See also Bache & Marshall, 2004: 3). Moreover, in case of great inconsistencies between European and national

institutions, mediating factors play a crucial role. Cowles et al. (2001) refer to “structural factors” and “actors’ practices”. Structural factors are: multiple veto points (centralised or decentralised policy-making structure), mediating formal institutions (preventing or furthering ideas of structural change) and political or organisational cultures (uncooperative or cooperative decision-making). Overall, the domestic structure can provide barriers or opportunities to domestic change. The second category of mediating factors is relevant because the actions of specific actors, such as national governments, interested groups or companies, can prevent or promote national change. Cowles et al. (2001) point at two main consequences of Europeanisation, which can work in favour or against national adaptation to EU requirements: redistribution of power and learning processes. Some actors may take Europeanisation as an opportunity to push forward their interests, while others may try to prevent changes that can negatively impact on their positions of power. Europeanisation can also trigger learning processes that can change actors’ beliefs and interests.

2.2. Europeanisation and the concept of the institution

A basic concept underlying the process of Europeanisation is that of “the institution”. Institutions are defined as systems of rules in a society: human beings are used to organise human interactions, in particular in case of repetitive actions, by introducing standard ways of doing things (Ostrom, 2005; North, 1990). Historical development reinforces their path irrespective of their superior or inferior potential compared to other alternatives (Arthur, 1989: 128; David, 1994: 209). It is possible to distinguish between formal (including political and social systems), and informal (e.g. routines, customs, traditions, conventions, beliefs) institutions, which together constitute the institutional framework of a society (Nelson & Winter, 2002: 30).

In the process of diffusion of policy ideas, institutions work as filters, letting some new policy ideas access the policy-making arena, while others are excluded. Policy ideas that permeate national policy-making process are then translated into national practices in unique ways, according to prevailing national institutions (Campbell, 2002: 30). Diffusion is more rapid when a match exists between supranational and domestic norms (Checkel, 1999: 87). This is because opposition against institutional changes that are consistent with domestic constitutive principles is unlikely (Cowles et al., 2001). On the contrary, in case of inconsistency, domestic structures tend to stick in a prolonged stability, as once an institutional arrangement is set up, network externalities, coordination effects, sunk costs, lock-in effects and mutual expectations reinforce their roots (Campbell 2002: 31; North, 1990: 99; Pierson, 1993: 607-608).

2.3. Europeanisation and the path dependence in policy-making

Europeanisation studies reveal considerable variation in the impact of EU institutions on EU member states. There is little evidence of homogenisation of domestic policy practices, and this is often considered an unrealistic expectation (Bulmer, 2002: 53; Cowles et al., 2001: 221; Harmsen, 1999: 86; Bache & Marshall, 2004: 3). Rather, it is believed that imposing a common set of rules on all EU member states will likely lead to divergent outcomes (North, 1990: 101). The same European policy might produce fundamental reforms on one EU country but have no impact at all in others. Moreover, policy structures are issue-area specific and they might vary quite substantially across policy sectors in a given domestic structure. It might be observed considerable regulatory adjustments to some European policies while nothing at all happens on other areas of Europeanisation within the same EU country (Knill & Lehmkuhl, 2002: 256; Cowles et al., 2001: 8; Olsen, 2002: 933).

Many studies have been conducted to detect the factors that determine differentiated national degree of Europeanisation. For instance, Schmidt (2002: 899) has identified five factors: economic vulnerability, political institutional capacity, policy legacies, policy preferences, and discourse. Similarly, Börzel

(2002: 208) has pointed out two factors, which are policy preferences and capacity to participate in the European policy-making process. These two factors are then traced back to the level of economic development of a country, which is the main factor favouring or impeding Europeanisation. Simplifying, it is in the interest of every EU member state to see its own national structure mirrored at European level, however this is more likely to happen if a country is economically well developed. This is because more advanced economies usually have more established national institutions and stronger power in the EU policy-making process so that they can actually promote their domestic practices.

Given that these factors are country-specific, EU member states engage in country-specific processes of Europeanisation. National patterns of adjustment to the Europeanisation process differ in function with differing institutional starting points. National institutions develop adaptational mechanisms on the basis of existing institutional settings (e.g. Knill, 2001; Bache & Marshall, 2004) and they do not passively let changes happen, instead, they shape them in order to maintain control over outcomes. On this point, March and Olsen (1989: 34) state “[t]he most standard institutional response to novelty is to find a familiar routine in the existing repertoire of routines and practices”.

A sort of in-built resistance to change exists to different degrees across EU countries. The persistence of existing institutional patterns reveals the path dependent nature of policy-making (Cowles et al., 2001: 3; Harmsen, 1999: 86; Bache & Marshall, 2004: 3; Borzel, 1999: 577). David (1994: 206) has portrayed the concept of path dependency saying that “the hand of the past [...] exert[s] a continuing influence upon the shape of the present.” Institutional change is rarely radical, instantaneous and costless. Usually what one can see is an incremental evolution of existing domestic settings (Nelson & Winter, 2002: 30).

2.4. Europeanisation of radio spectrum policy

The paper attempts to adapt the conceptual framework proposed by Cowles et al. (2001) to the policy area of radio spectrum. The conceptual framework has been simplified and reported in the figure below (Figure 1). Europeanisation of radio spectrum policy is intended as the harmonisation of national approaches to the assignment of radio spectrum frequencies. The focus of the paper is restricted to the top-down process of Europeanisation, addressing the impact of EU requirements to domestic structures. In particular the paper is concerned with the role that national institutions and actors play as filters of EU pressure for harmonisation.

In this policy area, the concept of goodness of fit can be interpreted as the degree of similarity between European and national radio spectrum goals and management practices. When EU and national institutions share the same goals and adopt comparable rules governing the use of radio spectrum, EU member states are subject to minimal or absent pressure for change. This means that EU radio spectrum policy reforms can be adopted by the EU member states without much effort. Instead, adaptational pressure gradually increases as the degree of fit between European and national radio spectrum goals and management practices decreases (Cowles et al., 2001: 6; Radaelli, 2000: 15). As shown in Figure 1, domestic change is the outcome of EU pressure for adaptation on national institutions and actors. The intensity of adaptational pressure may vary among EU member states, according to the degree of goodness of fit.

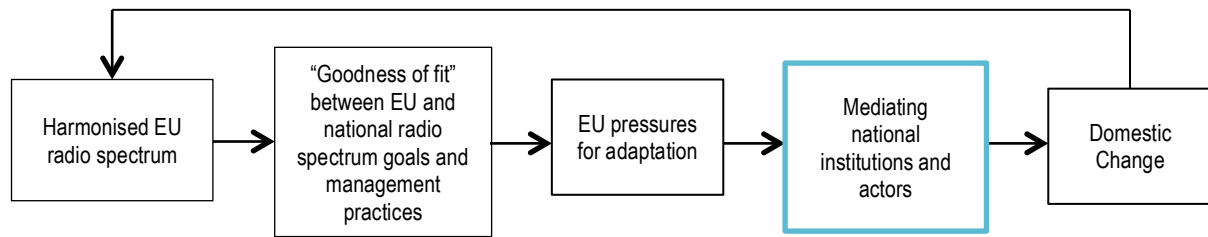


Fig. 1 Europeanisation of radio spectrum policy: internal market versus subsidiarity
Source: adapted from Cowles et al. (2001) p. 6.

In case of misfit, mediating factors, both in terms of national institutions and actors, play an essential role. The assignment of radio spectrum frequencies is a responsibility of NRAs that decide on the conditions that are attached to the national award procedure and to the actual licenses that are awarded. Moreover, there are several actors who have some interests at stake, such as national governments and radio spectrum users, both public and private, which are eager to defend or promote their interests in the process of harmonisation.

It is noteworthy that the conceptual framework proposed by Cowles et al. (2001) has been criticised and considered problematic (Bulmers, 2007: 52). The main critique regards the notion of “goodness of fit” and its validity as explanatory variable of domestic adaptation. For instance, Héritier & Knill (2001) and Knill & Lehmkuhl (2002) offer empirical findings to show that domestic change takes place even if there is no misfit between European and national institutions and, consequently, adaptational pressure. Some authors argue that the concept of “goodness of fit” is valid only under certain conditions, but it cannot be taken as a general explanatory factor. In particular the concept of “goodness of fit” can only be applied to those policy areas where Europeanisation is the outcome of mechanisms of positive integration: EU policies consist of frameworks that have to be put into effect in the EU member states (see Bulmer & Radaelli, 2004 and Bulmer, 2007). The paper does not take any position in favour or against these critiques, however acknowledges the policy area of radio spectrum as a policy area where the EU prescribes the implementation of a regulatory framework. Therefore, the concept of “goodness of fit” can be considered a valid explanatory variable.

3. The Evolution of EU radio spectrum policy

Since the late 80’s, political initiatives and policy and regulatory interventions on radio spectrum contributed to raising awareness of the strategic impact of radio spectrum use for the creation and functioning of the EU internal market. Looking at the history of EU initiatives on radio spectrum a clear evolutionary process towards the harmonisation of radio spectrum use across the EU emerges, which can be divided into four phases. Each of these phases reveals a different degree of EU commitment towards harmonisation both of the allocation and assignment of radio spectrum.

During the first phase the role of EU in the radio spectrum policy scene emerged. This was the phase of radio frequency use harmonised on a sector- or technology-specific basis, in particular for mobile and personal communications. The second phase was marked by the adoption of the Radio Spectrum Decision as part of the 2002 regulatory framework. This Decision created a legal and policy framework to support a European common approach to radio spectrum, promoting harmonisation of radio spectrum bands allocated to specific uses and of technical conditions to avoid interference. In the third phase, the revision of the regulatory framework in 2009 strengthened the EU power control over the use of radio spectrum (Oberst, 2010). Moreover, during the third phase the first Radio Spectrum Policy Programme (RSPP), for the period 2010-2015, was adopted. This represents a renewed

economic and social approach towards radio spectrum use, aimed at increasing harmonisation of national assignment procedures and convergence of licensing conditions for a certain target of radio spectrum bands allocated for wireless broadband. The fourth and current phase is built upon the failure of the RSPP. In fact, although a slow and gradual progress towards harmonisation has been made, there are still inconsistencies national radio spectrum assignment procedures. Thus, the last phase is centred on the analysis of the EC radio spectrum reforms contained in the Connected Continent legislative proposal. This is designed to modify the existing telecommunications regulatory framework in such a way that the fragmented telecommunications market structure can finally be overcome.

3.1. The first ad-hoc phase

In the late 80's and early 90's there was neither a clear EU political initiative, nor a solid policy and regulatory framework for radio spectrum, as radiocommunications systems were at their infancy and there was a limited number of radio-based services and equipment. Europe had no authority over spectrum. The European Union relied on the work undertaken in the International Telecommunication Union (ITU) and the European Conference of Postal and Telecommunications organisations (CEPT). Both the low level of technology development and the weak role of the EU in the international area gave the EU member states enough leeway to develop differentiated national approaches to radio spectrum.

The EU started to get involved in radio spectrum issues when it acknowledged that the use of radio spectrum had great impact on the internal market (Medeisis & Holland, 2013). This led to the implementation of a number of top-level harmonisation measures.

Firstly, some directives were adopted promoting the harmonised use of a certain amount, albeit small, of radio spectrum to be reserved for specific mobile and personal communications. In particular, the Directive on GSM (87/372/EEC) set the stage for the establishment of the upcoming digital land-based mobile communications system (Ungerer, 2014); the Directive on DECT (91/287/EEC) created the necessary conditions for the coordinated introduction of digital European cordless telecommunications; while the Directive on ERMES (90/544/EEC) concerned binding frequency band reservations for pan-European land-based public radio paging service.

Secondly, the ONP (Open Network Provision) principles were implemented (Directive 90/387/EEC), concerning harmonised conditions for open and efficient access to and use of public telecommunications networks and, where applicable, services in all EU member states. The so-called Mission Directive (Directive 96/2/EC amending Directive 90/388/EEC) was adopted with regard to mobile and personal communications promoting competition among operators, by requiring the withdrawal of exclusive rights of the supply of telecommunications services (other than voice telephony) and providing that conditions governing the access to the networks were objective, non-discriminatory and transparent. An important step in the process of harmonisation in the assignment of radio spectrum was the adoption of the so-called Licensing Directive (Directive 97/13/EC), which set a common framework for general authorisations and individual licences granted by the EU member states.

Thirdly, a single European internal market for all radio equipment and telecommunications terminal equipment was promoted by adopting the Radio and Telecommunications Terminal Equipment (R&TTE) Directive (1999/5/EC). The Directive defines a set of essential requirements for radio and telecommunications equipment which can ensure their placing on the market, free movement and putting into service without causing harmful interference (Medeisis & Holland, 2013).

3.2. The beginning of radio spectrum policy

The opening up of the telecommunications sector gave a boost to a rapid expansion of radio-based services and equipment, which started to be developed for global markets. The radio spectrum environment became more complex. The demand for access to radio spectrum increased and the problem of harmful interference became critical. The EU realised diverging national approaches were settling down and the absence of coordination from the EU level was seriously affecting the provision of pan-European services (COM(98) 596). Therefore the EC published a Green Paper on radio spectrum policy in 1998, bringing forward the point of strengthening a European framework for radio spectrum policy. A public consultation on the 1998 Green Paper ran from 15 December 1998 until 15 April 1999. The results of the public consultation showed that the role of the EU in radio spectrum policy needed to be enhanced both at European and international level (COM(1999) 538).

In this phase, there were no stand-alone initiatives on radio spectrum policy, but still important radio spectrum policy issues were addressed during the review of the 1998 telecommunications regulatory framework, started in 1999 (COM(1999) 539). As part of the revised 2002 regulatory package (COM(2000) 393), the so-called Framework Directive (2002/21/EC) required national regulatory authorities to allocate and assign radio frequencies following objective, transparent, non-discriminatory and proportionate criteria. Furthermore, the Authorisation Directive (2002/20/EC) replaced individual licences with general authorisations for the provision of electronic communications networks or services, although NRAs were still responsible for defining the conditions attached the licenses awarded (Medeisis & Holland, 2013).

A decisive moment towards the development of a European common approach to the radio spectrum is represented by the implementation of the Radio Spectrum Decision (676/2002/EC), as part of the new 2002 regulatory package. This decision essentially institutionalised European spectrum policy, establishing a policy and legal framework to support harmonisation of radio spectrum use for the functioning of the internal market.

In particular, the Radio Spectrum Decision established a comitology mechanism for developing and implementing EU radio spectrum policy, with the participation of the EC and two other bodies:

- the Radio Spectrum Committee (RSC), established by the Radio Spectrum Decision. It is composed of representatives of the EU member states and chaired by a representative of the EC. The RSC exercises its functions through settled advisory and regulatory procedures (Regulation No. 182/2011). Its major task consists of assisting the EC in formulating, developing and implementing EU radio spectrum policy to ensure a harmonised and efficient use of radio spectrum across Europe, having regard to the development and adoption of technical implementing measures related to radio spectrum.
- the Radio Spectrum Policy Group (RSPG), established by Decision 2002/622/EC, amended in December 2009 (Decision 2009/978/EU). RSPG members are high-level governmental representatives of the EU Member States and of the EC. The RSPG plays an important role in fostering the economic, political, cultural, strategic, health and social aspects of the radio spectrum policy, giving strategic advices to the RSC. It also considers and tries to properly balance the various potentially conflicting needs of radio spectrum users. Other EU institutions, such as the EP and the Council can also request advice from the RSPG to issue an opinion or write a report on specific radio spectrum policy topics relating to electronic communications.

To date, harmonisation measures are adopted by means of this comitology process. Moreover, the EC places mandates to CEPT if there is a need of technical assistance for the development of technical harmonisation measures.

The Radio Spectrum Decision is considered an essential and decisive step towards ensuring that a EU approach to radio spectrum puts down roots. Moreover, by virtue of this decision, the EC started to play a role in international negotiations for the promotion of EU interests at the World and Regional Radiocommunication Conferences (WRC and RRC, respectively), although still without formal seat and vote. This was manifest in the EC Communications “EU spectrum policy priorities for the digital switchover in the context of the upcoming ITU Regional Radiocommunication Conference” (COM(2005) 461 final), with which the EC declared the release of digital dividend frequencies (the 800 MHz band) resulting from the digital switchover as a spectrum policy priority in the context of the upcoming 2006 Regional Radiocommunication Conference (RRC-06); “the ITU World Radiocommunication Conference 2007” (COM(2007) 371 final) and “The European Union’s policy approach to the ITU World Radiocommunication Conference 2012” (COM(2011) 180 final), setting out the EU policy interests and objectives related to WRCs’ agenda items.

In addition to the 2002 regulatory package, the Commission introduced further reforms in radio spectrum management, in an effort to promoting European common principles and rules. Important are COM(2003) 541 and COM(2005) 204 on the transition from analogue to digital television. In COM(2005) 400, the EC expressed its opinion in favour of the introduction of market mechanisms for spectrum management. While the EC promoted a more flexible approach towards radio spectrum management by implementing the WAPECS (Wireless Access Policy for Electronic Communication Services) policy (COM(2007) 50). The WAPECS policy sought to establish a framework for the provision of electronic communication services by means of selected radio frequencies scheduled by EU member states (Akalu, 2006; Gujarro & Alabau, 2013).

Although some progress had been made, the EC acknowledged that the goal of creating an internal market for electronic communications and radio equipment was still out-of-the way. Regulatory fragmentation and inconsistencies between national radio spectrum management practices were identified as one of the main causes that were jeopardising the completion and functioning of the internal market. Therefore, the EC launched a public consultation “on the Review of the EU Regulatory Framework for electronic communications networks and services” (COM(2006) 334) that ran from June 2006 to October 2006. The EC put forward the critical need of reforming the existing regulatory framework, which found support in the EP Resolution “Towards a European policy on the radio spectrum” adopted in February 2007 (T6-0041/2007). The 2002 EU regulatory framework for electronic communications was modified in November 2009 with entry into force by mid-2011.

3.3. Yet further steps in 2009 and in 2012

An important stage in the process of centralisation of radio spectrum governance at EU level and harmonisation of radio spectrum use across the EU member states is represented by the so-called Better Regulation Directive (2009/140/EC), amending the 2002 Framework, Access and Authorisation Directives. The Better Regulation Directive encouraged the set up of the first tailor-made initiative dedicated to radio spectrum, namely a multiannual Radio Spectrum Policy Programme (RSPP) covering the period 2010-2015 (Decision No 243/2012/EU).

The RSPP represents a renewed economic and social approach towards radio spectrum use, the future economy being grounded on wireless communications. It is recognised the huge potential of wireless broadband services to promote a knowledge-based economy, to develop and assist sectors relying on

information and communications technologies and to overcome the digital divide. The RSPP set forth the role Europe plays in coordinating and harmonising radio spectrum from a legislative perspective. The proposed measures were thought to promoting efficiency and flexibility in spectrum use and competition between electronic communications services. One of the objectives is the removal of rigidities in spectrum management, such as differentiated national regulatory principles and criteria in spectrum assignments procedures. Ultimately, the RSPP aims at ensuring a more coherent EU approach to radio spectrum for the functioning of the internal market, which would favour a smooth transition from 3G to 4G and 5G.

As part of the RSPP, EU member states are asked to make available certain specific radio spectrum bands harmonised for electronic communication services by completing the national assignment procedures. In particular, EU member states agreed on the deadline of 1st January 2013 for the assignment of the 800 MHz band.

High expectations accompanied the implementation of the first RSPP. However the failure of over half of the EU member states to assign the 800 MHz band for mobile broadband by the deadline of 1st January 2013 showed how difficult it was to increase the level of harmonisation of the assignment of radio spectrum (COM(2014) 228 final). Harmonising the conditions attached to the award procedures and to the assigned licences requires overcoming extensive lack of coherence in spectrum usage and management practices across the EU. This is due to the degree of fit/misfit between EU and national radio spectrum goals and management practices and to the role of national mediating factors. For instance, it must be taken into consideration that several national radio spectrum users, both public and private, can have contrasting interests at stake. Moreover, the national economic and political situation can also impact on the capability of a nation to implement changes in the use of radio spectrum.

So far, the implementation of the first RSPP has not brought the expected results (COM(2014) 228 final). The experience of the 800 MHz band confirmed the national dimension of the radio spectrum assignment process and the resistance of national administrations to comply with common EU rules. Despite important achievements, the problem of lack of harmonised measures for the assignment of radio spectrum did not find solution with the RSPP (Youell, 2013a). For this reason, the EC included some radio spectrum reforms in the proposal for a regulation of the EP and the Council put forward on 11 September 2013. The so-called Connected Continent legislative proposal is aimed at changing the existing regulatory framework for the telecommunications market.

3.4. Yet more: the Connected Continent legislative proposal

3.4.1 The EC proposed radio spectrum reforms

The internal market for electronic communications and radio equipment is still far to be complete. In this regard, the Connected Continent legislative proposal embraces several changes targeted at “the gradual removal of national barriers [to the creation of the internal market], including [...] different national conditions for allocating and assigning spectrum” (COM(2013) 634). Articles 8-16, included in section 1 of Chapter III of the Regulation address the still unresolved problem of radio spectrum policy fragmentation across Europe.

The proposed measures intend to increase harmonisation of radio spectrum use for wireless broadband communications across EU member states (article 8). To this end, NRAs are required to apply common regulatory principles and criteria when defining the conditions attached to the licences for use of harmonised EU radio frequencies for broadband communications (articles 9, 10 and 11). Moreover, NRAs must comply with specified authorisation conditions when defining assignments procedures. In particular, they are asked to establish timetables for assignment procedures, which will

be used to set up a common timetable at EU level. In this way radio spectrum rights of use will have the same duration in all EU countries (article 12). In line with that, the EC proposes a cooperation mechanism involving NRAs and the EC for better coordination of national assignment procedures and authorisation conditions. The EC would have the power to review draft national assignment procedures and require amendments. And more than that, the EC could make a proposal for the withdrawal of the national assignment procedure in case this goes against the required conditions for harmonisation. If a qualified majority of the EU member states shares the same view of the EC, the EC proposal becomes a valid decision. Thus, that specific EU member state is forced to withdraw its proposal for the award procedure. This is the so-called EC veto right (article 13). Other measures are defined to simplifying the deployment and provision of low-power wireless broadband access (Wi-Fi, small cells), assigning the EC the right to define the technical characteristics, in order to enhance competition and reduce network congestion (article 14 and 15). Lastly, the removal of national barriers to the internal market is pursued by promoting greater coordination between EU member states to ensure the same conditions of access to radio spectrum across the EU. In this regard, the EC has the right of intervention in case of inconsistencies that tilt against cross-border coordination (article 16).

The EC firmly believes these reforms will reduce the degree of diversity between national approaches to radio spectrum, setting the stage for more investment in LTE networks and the provision of pan-European services. Ultimately, these measures, together with the other initiatives contained in the Connected Continent legislative proposal, will rescue the EU competitive position in the global mobile economy.

And the vast majority of stakeholders actually welcome the EC's initiative. In fact, main position papers on the Connected Continent legislative proposal reveal broad agreement on the need for intervention to strengthen the EU single market. However, it is also evident a lack of understanding about the measures proposed by the EC to achieve this goal. Many stakeholders claim the proposal lacks of a red thread running through its different parts. The proposed regulation is perceived as a patchwork of several distinct interventions, each of which finds large disagreement among stakeholders according to their respective interests.

Many stakeholders have expressed their concerns regarding the choice of the legal instrument, considering a Recommendation to be more suitable, in particular in the telecommunications sector, where great flexibility is needed to respond to fast changes. Many of the EC's proposed reforms are such a burdensome for a great number of EU member states that they even claim the removal of some topics from the Connected Continent package. Radio spectrum is among those topics to be excluded from the proposed regulation, because national prerogatives on radio spectrum collapse with the choice of a regulation, which has binding legal force in every EU member state.

Thus, the proposed radio spectrum reforms have not been immune from critics. On the contrary, this hot topic has been the subject of a vast debate among stakeholders. What has emerged is that there is still a strong contrast between the idea of radio spectrum as a national asset, which needs to be managed according to national circumstances, and the goal of harmonisation of radio spectrum use undertaken by the EU.

3.4.2 Subsidiarity versus internal market in the in the EC radio spectrum reforms

In this paper, the interplay between the EC, the EP, the Council and BEREC is taken as illustrative of the tension between the need of centralised control over radio spectrum to overcome fragmentation of national radio spectrum management practices and the reluctance of EU member states to accept intrusions into the policy area of radio spectrum. This tension can be generalised in the dichotomy

between the ambition of a EU single market and the subsidiarity principle, which limits the EU's field of action.

It is worth saying that the Council is formed by representatives from executive national governments that promote national interests at EU level, while BEREC is composed of high-level representatives from NRAs. The EP and the EC have a more European-wide dimension: in the EP, parliamentarians are grouped according to political orientation instead of nationality¹, while the EC is composed by one commissioner from each country and puts forward the interests of the EU as a whole.²

Thus, the assessment of the Connected Continent legislative package is based on the views of the EP, the Council and BEREC on the EC proposed radio spectrum reforms. The views on each article are summarised in Table 1 reported below. The first column of the table reports briefly the content of each article. Opinions on each article are positioned on the corresponding row. Articles 14 and 15 are not included in the table, as there is no big discussion around their content, although the Council has questioned the ambiguity of the problems addressed by means of the proposed measures.

The data collected indicate that the EP broadly supports the EC's initiatives on radio spectrum, while BEREC and the Council denounce the excessive intrusive nature of the proposed measures, considered unreasonably interfering with EU member states' prerogatives on radio spectrum.

In the EP draft resolution, the EP endorses the definition of specific and precise criteria to be followed by NRAs when assigning radio frequencies and the EC's proposal for a complex notification procedure for national spectrum awards and synchronised spectrum licensing, although several amendments have been introduced. Moreover, in order to increase the degree of similarity between the features of radio spectrum licenses, the EP has added a new article (article 8a) in its draft resolution. In this article there is a clear clash between the EU goal of promoting harmonisation of radio spectrum management rules and practices and the right the EU member states claim of managing the radio spectrum, which is a national asset, according to national needs and interests. Among other things, this article states a minimum duration of 25 years for all radio spectrum rights of use. This means that its content is retroactively applicable to existing licences already assigned. Moreover, the EU member states are not allowed to refuse transfers or leases of licenses, even if this would distort competition. BEREC expressed its unease for a drastic restriction of NRAs abilities to manage radio spectrum and to intervene in case of anti-competitive behaviour.

One of the main critiques that BEREC and the Council move against the EC regards scarce consideration of existing mechanisms and procedures. Instead of proposing new means which overlap or conflict with other EU or national laws, instruments such as RSD, RSPG and RSC could be reinforced and find better application for the goal of radio spectrum harmonisation. BEREC and the Council also criticise the tightly defined parameters and detailed criteria that the EC has defined for the authorisation procedures and conditions for the use of radio spectrum. BEREC claims there is no sufficient evidence to support the EC's proposed radio spectrum reforms, which would determine a significant transfer of power from the national to the EU level. Moreover, the Council considers unacceptable the EC's veto right to review draft national authorisation procedures, with the possibility of requiring amendments or even withdrawals. Likewise, the Council criticises the measures proposed for ensuring cross-border coordination, in particular the EC opportunity of intervention in case of

¹ European Parliament / About Parliament, <http://www.europarl.europa.eu/portal/en> (accessed November 3, 2014)

² European Commission / About the European Commission, http://ec.europa.eu/about/index_en.htm (accessed November 3, 2014);

EU institutions and other bodies, <http://europa.eu/about-eu/institutions-bodies/> (accessed November 17, 2014).

conflicts between EU countries. EU member states see such a shift of responsibilities between EU and the EU member states as a breach of the national sovereignty over radio spectrum.

BEREC, from its side, denounces the lack of acknowledgement of its role in assisting the EC for developing and implementing EU radio spectrum policy. BEREC has been locked out of the definition of the legislative proposal. Moreover the EC has tried to propose the replacement of the BEREC's chair (currently appointed from BEREC members with one year term) with a professional chair with three-year term, chosen among candidates selected by the EC.

Table 1. Opinions from BEREC, the EP and the Council on the content of the EC Proposal

	The EC PROPOSAL	BEREC	The EP	The COUNCIL
ART. 8	Radio spectrum harmonised for wireless broadband communications EC assisted by RSPG	Scarce consideration of BEREC's role in regulatory issues	"the Commission shall take utmost account [...] of any regulatory best practice, report or advice issued by BEREC [...]".	No specific comment
ART. 8a	Art. 8a introduced by the EP	Risk of distorting competition; legal uncertainty; inefficiencies and sterilised use of radio spectrum. Members States' ability to manage eventual distortions of competition is undermined	Minimum duration of 25 years for RS rights of use, retroactively applicable. In some cases EU member states cannot refuse to allow a transfer or lease of spectrum rights of use	-
ART. 9	General regulatory principles for NRAs in defining conditions of use	Need for consultations and impact assessments involving all stakeholders by NRAs. Better reinforcing the use of existing instruments	NRAs "shall conduct a comprehensive impact assessment as well as consultations, which both shall involve all stakeholders"	Regulatory Principles too prescriptive and overlapping/conflicting with other EU or national laws
ART. 10	Relevant criteria for NRAs when defining characteristics of RS rights of use	No specific comments	No relevant changes	Too prescriptive and interference with EU member states' prerogatives
ART. 11	Additional conditions for NRAs related to use of RS	No specific comments	Broad Agreement (no prejudice to Framework Directive)	Several concerns about conflict between art. 11 and Authorisation directive; compensation fees and violation of principle of technology neutrality
ART. 12	Synchronisation of authorisation conditions for harmonisation of spectrum availability	Little evidence to support significant transfer of powers to the EC. Concerns about the EP's support to EC's proposals.	Agreement and reinforcement (addition of Article 12a)	Inappropriate: collision with national sovereignty. Some EU member states support deletion of this article.
ART. 13	Consultation mechanism for coordination of authorisation procedures (EC's veto right)	Risk of being ineffective: harder for operators to participate in several spectrum auctions at once	Broad agreement	Inappropriate: collision with national sovereignty. Disagreement about EC competences in particular the EC's "veto right". Some EU member states support deletion of this article.
ART. 16	Cross-border coordination	No specific comments	Removed	Support for deletion (at least Par. 3)

The EU believes that changes need to be implemented to overcome fragmentation of national radio spectrum policies and practices. However, the proposed reforms' ability to fully harmonise the use of radio spectrum across the EU requires support and consensus from EU member states. However, the views of the EC and the EP on one side and of the EU member states on other are extremely far from each other. Looking at the conceptual framework proposed by Cowles et al. (2001), the prescriptive measures contained in the Connected Continent legislative proposal represent the means by which the EU is exercising adaptational pressure on national institutions. However domestic adaptation to EU requirements is challenged by national resistance to change. Instead of having a number of binding measures for the harmonisation of assignment procedures and of the conditions attached to radio spectrum licenses, EU member states are proposing an exchange of best practices for improving the level harmonisation. However the goal of fully harmonising the use of radio spectrum across the EU by means of exchange of best practices is highly questionable.

The EC legislative proposal is subject to co-decision, which means that after the EP approval in April 2014, the proposal has been discussed in the Council, which is going to express its view on the 27 November 2014. After that, there will be further negotiations with the EP. The aim is to conclude the legislative process by the beginning of 2015, however it is unsure if the proposed radio spectrum reforms will be included in the final version of the Connected Continent package.

In the meanwhile, the EC is trying to create a common ground between the positions of the EC and the EP on one side and of the EU member states on the other. More specifically, a discussion is going on for the adoption of a Recommendation on the radio spectrum issues. Both BEREC and the RSPG would comment on the Recommendation, BEREC focusing on elements of licensing and awards and the RSPG focusing on more strategic aspects. The Recommendation would contain guidance for the EU member states, without however binding effects, which are instead linked to a Decision. This means that the EU member states are not obliged to comply with the proposed measures, but still they have to motivate their choice of not compliance.

This strategic move could soften the diverging and conflicting views on the content of the proposed reforms. Although the EU member states are unwilling to give up on their prerogatives on radio spectrum by accepting too intrusive harmonised measures, they might adopt less prescriptive harmonised conditions.

3.4.3 Beyond the Connected Continent legislative proposal

The EC is working on several strategic interventions for the long-term use of the radio spectrum. As part of the RSPP a spectrum inventory process has been set up to identify at least 1200 MHz (including spectrum already in use) of suitable spectrum to be harmonised for wireless broadband services by 2015. Among several radio spectrum bands the 2.3-2.4 GHz band attracted particular interest (COM(2014) 536 final). In fact, this band is already used for wireless broadband in other parts of the world and would represent an additional 100 MHz band to be allocated to wireless broadband.

Another EU target is the 700 MHz band, currently used for television broadcasting. A report (Results of the work of the high level group on the future use of the UHF band (470-790) by Mr Pascal Lamy) has been recently released which describes a strategy to make 700 MHz band available for wireless broadband. This strategy is articulated in three parts. The first part consists of moving the television broadcasting services from the 700 MHz band down to the 470-694 MHz band by 2020. The second part of the strategy envisages that the use of the frequencies below the 700 MHz band would be frozen until 2030. Such a timeframe would offer broadcasters more certainties in terms of returns on investments in new technology. The third part of the strategy represents a review of the actual strategy,

to be done in 2025, so that the strategic plan could be adapted to the new technological and economic conditions.

With regards to the top-level of harmonisation, the EC does not expect to harmonise additional radio spectrum frequency band for wireless broadband. One of the main reasons is lack of demand in some EU member states. In fact, some national procedures for the assignment of radio spectrum bands already harmonised at the EU level for wireless broadband have sought no interest from mobile operators.

With regards to the second type of harmonisation, since the adoption of the RSPP a number of award procedures have taken place in many EU countries for the assignment of harmonised EU radio spectrum bands for wireless broadband, although there are still some EU countries that have not completed yet the assignment procedure for the 800 MHz band. Furthermore, the EC is planning the adoption of a second radio spectrum policy programme expected for the year 2016.

It must be admitted that the review of the regulatory framework for the use of the radio spectrum is a very long-term objective due to the strong opposition of the EU member states to comply with perspective harmonised conditions. However, the EC is committed to actively manage the responses from national institutions calibrating the EU pressure for more radio spectrum harmonisation. The strategic interventions outlined above might have the potential to meet the expectations of both the EU and the EU member states and create the ground for more substantial regulatory reforms in the future.

4. Conclusions

The extensive growth of mobile data traffic requires deployment of new generation LTE networks, which necessitate an increasing amount of radio frequencies. By implementing the first RSPP, the EU recognised the huge potential of wireless networks as a way forward to recover its declining leadership in the current mobile economy. The growing disproportion between the demand for access to the radio spectrum and the amount of radio frequencies available has boosted strong commitment at the EU level towards radio spectrum efficiency by means of harmonised measures across the EU.

However, the RSPP gave way to a sense of disappointment. Over half of the EU member states missed the deadline of 1st January 2013 to assign the 800 MHz to mobile operators. The experience of the 800 MHz band confirmed the national dimension of the radio spectrum assignment process and the resistance of national administrations to comply with harmonised rules. The Connected Continent legislative proposal includes yet another attempt to establishing a unique body of rules governing the use of radio spectrum across the EU. A renewed confidence accompanied the EC proposed reforms, relying on the EU member states' understanding of the benefit of a EU single market (Youell, 2013b). Indeed, after the RSPP failure there has been general consensus over the necessity to enhance harmonisation of radio spectrum national rules and practices.

The historical overview of the EU initiatives on radio spectrum shows that the EU is moving towards a strategic development of EU radio spectrum policy. However, it is unlikely that the radio spectrum reforms contained the Connected Continent legislative proposal would be the means by which the level of harmonisation concerned with the assignment of radio spectrum frequencies can be enhanced. The interplay between the EC, the EP, the Council and BEREC shows that the EU and the EU member states have remarkably diverging views on the content of the EC proposed reforms.

The paper claims that in the arduous process of harmonisation of radio spectrum use much has still to be accomplished. The review of the regulatory framework for the use of the radio spectrum is a very

long-term objective. The EU member states own the radio spectrum and regulate its use according to national needs and interests, and have different radio spectrum legacies. This translates in persisting 28 distinct national regulatory settings (Youell, 2103c). At the same time, the existence of several and sometimes conflicting national rules and practices contributes to impeding the flourishing of the internal market.

The EU member states are unwilling to loose their prerogatives on the radio spectrum by accepting too intrusive harmonised measures. However they might be keen on adopting less prescriptive harmonised conditions. For this reason, the proposal for a Recommendation with less strong conditions might have the potential to meet the current expectations of both the EU and the EU member states and create the ground from more substantial regulatory reforms in the future. The other strategic interventions mentioned before involving the 2.3-2.4 GHz and the 700 MHz bands and the second radio spectrum policy programme also go to the same direction.

It is believed that the EU is on the right track for overcoming the lack of harmonised conditions governing the use of radio spectrum. However, it is difficult to predict how long this process would take given the high degree of diversity between EU member states in terms of institutional structure and previous regulations, which exert long-standing effect on national radio spectrum goals and management rules and practices.

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- Directive 97/51/EC of 6 October 1997 amending Council Directives 90/387/EEC and 92/44/EEC for the purpose of adaptation to a competitive environment in telecommunications.
- Directive 1999/5/EC of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.
- Directive 2002/19/EC of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive).
- Directive 2002/20/EC of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive).
- Directive 2002/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).
- Directive 2002/22/EC of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive).
- Decision 676/2002/EC of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision).
- Directive 2002/58/EC of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications)
- Directive 2009/140/EC of 25 November 2009 amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities, and 2002/20/EC on the authorisation of electronic communications networks and services.
- Directive 2009/136/EC of 25 November 2009 amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector and Regulation (EC) No 2006/2004 on cooperation between national authorities responsible for the enforcement of consumer laws.
- Regulation (EC) No 2006/2004 on cooperation between national authorities responsible for the enforcement of consumer protection laws.
- Regulation (EC) No 1211/2009 of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office.
- Decision 243/2012/EU of 14 March 2012 establishing a multiannual radio spectrum policy programme.

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