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EUROPEAN SPECTRUM MANAGEMENT PRINCIPLES

PATRICK S. RYAN†

I. FREQUENCY MANAGEMENT AND TECHNOLOGY POLICY IN EUROPE

A. INTRODUCTION

Analysis of international frequency-related organizations can take many different directions. One common approach is to start with the broadest organizations, such as the United Nations' International Telecommunications Union ("ITU"),¹ and then work down from there to the more "regional" bodies and standards-setting organizations in Europe or the United States, such as the European Telecommunications Standards Institute ("ETSI") and the American National Standards Institute ("ANSI").² This kind of a broad-ranging analysis can sometimes be helpful because it casts a wide net that covers interested parties and issues worldwide. Nonetheless, such an analysis tends to overlook many of the new developments at the European Union, by far one of the most influential regional bodies in terms of spectrum management. Thus, in this article, we will address the developing spectrum management role of the various European organizations and provide an overview of the policies that these organizations have implemented.

We will begin by covering aspects of developing laws within the European Union, as well as discuss member countries' attempts to coordinate their regulatory efforts in a relentless move away from telecommunications monopolies and towards free markets. It is important to note that consideration of the concept of spectrum management

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1. See generally ITU, *Welcome to the International Telecommunications Union*, <http://www.itu.int> (accessed Jan. 2, 2004).

2. See e.g., Christoph Wagner & Andreas Grünwald, *Rechtsfragen auf dem Weg zu DVB-T*, 19-23 (Vistas 2002).

at the European Union level has begun only recently because frequencies have traditionally been allocated, allotted, and assigned by the individual states. In fact, there is great uncertainty as to how—and if—the European Union will undertake a comprehensive harmonization effort in spectrum management (It is, however, noteworthy that two European officials recently compared European spectrum policy to Gerald Faulhaber and David Farber’s analogy to intellectually bankrupt GOSPLAN³ initiatives, and even extending the analogy to characterize the dearth of a comprehensible European spectrum policy as a “black hole”).⁴ For this reason, this article will be considerably descriptive in nature, and it will provide an overview of the important technology-related actions taken by the European Union in past years, including the implementation of technology promotion programs (e.g., the RACE program, described below) and the passage of the “new framework” for telecommunications and its associated Radio Spectrum Decision.⁵ By analyzing past actions, we will be able to make sound predictions for the future.

At the outset, it should be stated (particularly for the American reader) that any discussion of European policies is a complicated one, in part because the (ostensibly simple) word “Europe” means different things to different people.⁶ At the present time, the European Union has expanded to twenty-five countries,⁷ two additional countries may become

3. See Gerald R. Faulhaber & David J. Farber, *Spectrum Management: Property Rights, Markets and the Commons*, 100x100network.org/papers/faulhaber-brookings2002.pdf (Dec. 2002) (providing a description of GOSPLAN (the former Soviet Union’s committee for economic planning)).

4. See Ruprecht Niepold, *Political Agenda for Communications from the Commission Perspective*, http://europa.eu.int/information_society/topics/radio_spectrum/docs/ppt/cept_conf_political.ppt (accessed Apr. 12, 2004) (comparing the “regulator” to GOSPLAN in slide 11 and referring to Europe’s spectrum management role as a “black hole” in slide 12); see also Frank Greco, *Frequency Management Reform: The European Implications*, <http://www.tilburguniversity.nl/tilc/events/conferences/07052003/greco.pdf> (accessed Apr. 12, 2004).

5. Please refer to the Appendix for an overview of the various legislative actions associated with the “new framework.”

6. First, a comment on the various uses of the word “Europe.” Within this article, “Europe” generally refers to those European countries that belong to the European Union. However, “Europe” can sometimes be used in a much broader sense to include European countries that are not members of the European Union, such as Switzerland, Liechtenstein, Norway, and Iceland. These countries belong to the European Free Trade Association, a separate economic community. See EFTA, *European Free Trade Association*, <http://www.efta.int> (accessed Mar. 30, 2005). “Europe” can also sometimes refer to countries whose borders extend into both the European and the Asian continents (e.g., Turkey). To further complicate the matter, the term “European Community” often refers to the institutions of Europe (e.g., the European Commission and the European Parliament). The reader is asked to interpret the meaning of the word “Europe” on a case-by-case basis, depending upon the context in which it is used.

7. The European Union developed out of a plan, set forth by French Foreign Minister Robert Schuman in 1950, to form a fusion of coal and steel industries in France and Ger-

provisional members within the next three years,⁸ and other countries may join thereafter.⁹ These countries represent a multitude of cultures, languages, and legal traditions. To state that there is a “European” approach to a given matter is to risk making inherently flawed generalizations about diverse peoples, cultures, and systems. However, since we are providing a high-level review of the European approach to economic integration (and drawing conclusions from that approach in an attempt to assess the forthcoming European spectrum management methodology), some generalizations are both necessary and inevitable.

B. LETTING GO OF THE PTTs

One generalization is rather safe to assert: The traditional regulatory model in Europe has been based on a state-run monopoly structure that has concretely changed only within the past ten years. Private ownership of telecommunications networks is a very new concept, as is the growth and consolidation of equipment providers. Law and economics scholar Eli Noam has summarized the twentieth-century European approach to telecommunications as follows:

For a century, telephony throughout Europe had been a ubiquitous, centralized, hierarchical network operated by a monopolist. The operating entity was usually a state administration for post, telephone and telegraph (“PTT”), though in some instances the post was separated from telecommunications. The entire arrangement was therefore known as the PTT system. . . . The physical and organizational structure of PTTs was hierarchical. Major policies were set by technical experts, largely outside public scrutiny. . . . It was not merely a technical system, but a social, political and economic institution based on the sharing of resources and the transfer of benefits towards favored groups, often the economically weak and almost always the middle class and farmers.¹⁰

many. An invitation was extended to other countries to participate, and the first “union,” which began in 1951, included France, West Germany, Italy, the Netherlands, Belgium, and Luxembourg. These countries signed the Treaty of Paris and became known as the European Coal and Steel Community. This collective underwent successive waves of expansion and later became known as the European Community (now, the European Union). In 1973, Ireland, the United Kingdom, and Denmark joined; in 1981, Greece; in 1986, Spain and Portugal; in 1995, Finland, Sweden, and Austria; and in 2004, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic, and Slovenia. See generally Weatherhill & Beaumont, *infra* n. 42, at 2-23.

8. Bulgaria and Romania are scheduled to become provisional members in 2007. See Jan Silva, *Bulgaria, Romania OK'd for 2007 EU Entry*, The Guardian, (Apr. 13, 2005) (available at <http://www.guardian.co.uk/world/latest/story/0,1280,-4934530,00.html>).

9. Turkish Cyprus, Turkey, and other countries may join. See European Union Enlargement, *Enlargement*, <http://europa.eu.int/comm/enlargement/> (accessed Apr. 11, 2004).

10. Eli Noam, *Telecommunications in Europe 3* (Oxford Press 1992) [hereinafter: Noam, *Telecommunications in Europe*].

Thus, the PTT system was heavily engrained in a social structure that sought to equalize social systems, providing consumer protections and instituting and fulfilling important pluralistic objectives.¹¹ The state-run PTT structure remained in place throughout most of the twentieth century and began to break apart only in the late 1980s.¹²

Although liberalization of European economic trade can be traced as far back as the 1951 Treaty of Rome (discussed below), the liberalization of European telecommunications actually began with the fracturing of the PTT structure, a process that was initiated in earnest with the June 10, 1987, Green Paper on the development of the common market for liberalization and harmonization of the telecommunications services and equipment.¹³ Although the Green Paper is not law, its terms nonetheless set the stage for countries within Europe to allow private (*i.e.*, non-state-run) industries to produce equipment for other markets on a much broader scale than before. At the time that the Green Paper was published, simple telecommunications devices like telephones could not be purchased in one European country and used in another.¹⁴ In the United States, where a dominant AT&T structure existed throughout the 1970s, equipment like telephones and answering machines could be used in all fifty states. This was not the case in Europe, where, for example, French devices did not work in neighboring Belgium.¹⁵ Thus, European countries came to realize that individual state-run monopoly structures could (and perhaps should) compete on an international level in order to improve the long-term viability of those structures and to derive lasting economic benefits. As commentator Joachim Scherer notes, the PTT monopolies would need to be dissolved in order to enable international competition. Though the total number of market players would be reduced, the aggregation of likeminded firms across the European continent would finally allow European companies to compete with large international private companies like IBM, AT&T, Lucent, and

11. See Peggy Valcke, *Pluralisme in een Digitale Interactieve Mediaomgeving* 103-213 (Ph.D. Dissertation, Katholieke Universiteit Leuven, July 2003) (describing the history of pluralism and the importance of maintaining it within a European context).

12. See Noam, *Telecommunications in Europe*, *supra* n.10; see generally, James E. Darnton and Daniel A. Wuersch, *The European Commission's Progress Toward a New Approach for Competition in Telecommunications*, 26 *Int'l Law* 111 (1992).

13. *Green Paper on the Development of the Common Market for Telecommunication services and equipment*, COM(87) 290 (July 30, 1987).

14. See Paul Gannon, *Regulating Europe's Fragmented Market*, *Network Eur.* 19 (Sept. 1994) (discussing the standardization of terminal equipment).

15. See generally Donald A. Mader and Søren Krøigaard, *Achieving Harmonization of Product Safety Standards*, *Compliance Engineering*, (Nov./Dec. 1999) (available at <http://www.ce-mag.com/archive/1999/novdec/guesteditorial.html>) (describing the harmonization process for various items in Europe, and noting that "[s]tandards for electrical plugs and sockets may be among the last electrical equipment in Europe to become harmonized").

Motorola.¹⁶

This restructuring is taking place now. Numerous former state-subsidized equipment manufacturing companies that flirted with failure for years either have turned around after receiving massive subsidies and state protection (e.g., Bull in France)¹⁷ or have evolved into completely different organizations by changing their strategies and integrating with former competitors (e.g., Olivetti in Italy).¹⁸ Other companies have

16. See Joachim Scherer, *Asymmetric Re-regulation of Telecommunications Under European Community Law*, in *Asymmetric Deregulation 207-08* (Eli Noam & Gerard Pogorel eds. 1994). Scherer explains that the implementation of the policy goals of the 1980s Green Paper would require a major restructuring and breakup of the PTT monopolies.

17. The French computer manufacturer Bull was heavily funded by the state. In 1993, the French government gave the ailing company over \$4 billion in subsidies. At the time, the government loudly declared that it would never again “bail out the company,” and subsequent moves were made to privatize the company. Charles Fleming, *France Promises Bull \$1.2 billion in Aid, Names New Chief Ahead of Privatization*, *Wall Street Journal Europe* 3 (Oct. 19, 1993) (noting that the total aid granted to Bull in 1993 exceeded \$4 billion and that the European Commission was investigating the matter). However, the government did indeed bail out the company on subsequent occasions. In 1994, the government gave an additional \$1.7 billion to Bull, and in 2002 the government granted the company an additional \$500 million to keep it from bankruptcy. Kevin J. Delaney, *France to Give Bull Another Lift Up*, *Wall Street Journal Europe* A4 (Mar. 15, 2002). The story has a bittersweet ending. After the company experienced years of compounding losses, Pierre Bonelli took over the CEO office in December 2001 and initiated a dramatic restructuring to bring the company to profitability without state aid. On March 31, 2004, the company announced its first quarterly profit in recent history. However, Bonelli—the man credited with the company’s turnaround—died on April 1, 2004, the day following the announcement. See Nathalie Brafman, *Disparition: Pierre Bonelli, Président de Bull*, *Le Monde* (Apr. 3, 2004).

18. Olivetti is a very old Italian company that initially sold typewriters and that later entered into a failed computer venture with the help of heavy state subsidies (in this regard its story is similar to Bull’s). After struggling for years, the company became profitable in 1999 for the first time, and it made an offer to purchase Telecom Italia, a company seven times its size. The Economist colorfully described the plan as follows:

BRAVA Olivetti! Such panache—and such folly. Like the deep-sea dragon fish with its dislocatable jaw, the cocky Italian telecoms firm has bared its teeth at a colossus seven times its size. Telecom Italia, the startled target, is a former state utility and the sixth-largest telephone company in the world. To make the take-over bid announced on February 20th even cheekier, only 18 months ago Olivetti was barely breathing (and that thanks to government life-support and credulous investors), let alone in a state to attack rivals. Years on the brink [of bankruptcy], veering from typewriters into personal computers and out again into telecoms, had lost the firm trillions of lire and three-quarters of its staff. After but one year of profits, it now looks as though the applause has gone to Olivetti’s head.

The Economist, *Gulp*, www.economist.com (accessed Feb. 25, 1999) (subscription req’d). Indeed, Olivetti’s bold move seems to have set the stage for another confusing series of acquisitions, mergers, and investments. Tire maker Pirelli, computer maker Olivetti, and Telecom Italia all formed an unusual partnership shortly after Olivetti’s successful bid. Then, another investor came in—the Benetton family, of clothing line fame. The resulting (and highly unusual) telecommunications/rubber/computer/clothing conglomerate has bewildered most experts. See Deborah Ball, *A Tale of Blue Blood, Sweaters and Tires*, *Wall*

failed and are currently liquidating their assets (e.g., Grundig in Germany).¹⁹ Although this process is somewhat painful, several very strong telecommunications *service* providers are emerging, and some of these companies are buying American rival firms (e.g., Deutsche Telekom bought U.S. wireless provider VoiceStream,²⁰ and the UK's Vodafone

Street Journal A12 (July 31, 2001) (describing the history of the Olivetti, Pirelli, and Benetton companies and their interest in Telecom Italia); *Telecom Italia to Finance Tie-Up*, Wall Street Journal Europe M5 (Mar. 12, 2003). The article describes the complications of the new structure as follows:

Telecom Italia . . . is expected to unveil a reverse merger today with Olivetti in a move to simplify Telecom Italia's controlling structure, people familiar with the companies said. Italy's largest telecommunications firm is the last link in a chain of eight holding and operating companies that resulted after two takeovers – first by Olivetti and then by manufacturer Pirelli SpA – in two years. Analysts have long called on [Telecom Italia Chairman] Mr. Tronchetti Provera to streamline this pyramid-style ownership, which makes financial analysis difficult.

Id.

19. Grundig is a well-known German manufacturer of television sets and radios. The company suffered great losses and was unable to compete with more efficient rivals Philips (Netherlands) and Siemens (Germany). Philips provided Grundig with some cash investment in 1994; however, after several years of losses, Philips began distancing itself from Grundig. Ultimately, Philips pulled the plug in 1997. Grundig tried to restructure and to enter into other markets, but in 2003 the company filed for bankruptcy. Portions of the company have since been liquidated and sold off to others. See Martin du Bois & Silvia Ascarelli, *Philips in Last-Ditch Plan to Restructure Grundig Unit*, Wall Street Journal Europe 3 (Feb. 6, 1996) (describing the Philips takeover and the 1996 “ultimatum” to the company); Martin du Bois, *Botts-Led Investor Group Acquires 43% of Grundig*, Wall Street Journal Europe 3 (July 21, 1997) (describing Philips' withdrawal from Grundig and the acquisition of certain shares by private investors in an attempt to rescue the company); David Scheer, *German Bankruptcies Post Record in April*, Wall Street Journal Europe A2 (July 21, 2003) (noting that German bankruptcies would exceed 37,600 in 2003 and describing the Grundig filing as an example of a German “industrial pillar” that has failed); *Global Business Briefs—Automotive:Delphi Corp.*, Wall Street Journal A16 (Nov. 18, 2003) (noting that a company had purchased some of Grundig's assets in the liquidation process); see also Grundig, *Grundig Corporate History*, <http://tinyurl.com/24k4b> (describing the many products that Grundig had on the market). Of course, because of the liquidation process that is now underway, documentation of the corporate history exists only through 2002.

20. See William Boston & Yochai Dreazen, *U.S. Regulators to Clear VoiceStream Acquisition*, Wall Street Journal Europe 1 (Apr. 5, 2001). The article describes the VoiceStream acquisition, which was controversial because Deutsche Telekom is still heavily owned by the German government and because, under U.S. Department of Justice regulations, only private entities may own telecommunications businesses. In fact, one reason why the acquisition was approved by regulators is due to the fact that the dilution of shares reduced state ownership to a minority stake. *Id.* As Boston and Dreazen note, “Deutsche Telekom faced some opposition from lawmakers because it is still controlled by the German government, which holds around 58% of the company. The government's stake will fall to around 45% after the VoiceStream deal closes.” *Id.*

has made a major investment in Verizon²¹ and even considered purchasing AT&T Wireless).²² Furthermore, a powerful European core of equipment providers exists (e.g., Finland's Nokia, Sweden's Ericsson, France's Alcatel, and Germany's Siemens),²³ and these companies are giving their American counterparts more than a run for their money. For example, Alcatel almost bought U.S. giant Lucent during a troubled period in 2001,²⁴ and Nokia—originally a Finnish lumber company—has completely transformed itself. The company, famous for its mobile handsets, has risen to world dominance,²⁵ and it has recently begun expanding into digital television receivers²⁶ and gaming products.²⁷

The simultaneous process of expansion and consolidation within Europe is still at the very early stages, and it impossible to predict how the landscape will look in coming decades. Nonetheless, European telecom-

21. Vodafone bought 44.3 percent of Verizon Wireless in April 2000. See *Verizen, Verizon Wireless CFO Presentation at Vodafone* (Sept. 27, 2004) (describing the joint venture of Verizon and Vodafone) (available at <http://investor.verizon.com/news/20040927/>).

22. Vodafone Group PLC, based in the United Kingdom, has become the world's largest wireless carrier. In fact, it has recently announced plans to acquire AT&T Wireless Services in the United States. See Jesse Drucker *et. al.*, *Vodafone Weighs Two Bids: AT&T Wireless or Verizon?*, *Wall Street Journal Europe* A1 (Feb. 10, 2004). Drucker notes that: Vodafone Group PLC, the world's biggest wireless carrier, finally announced Monday that it is considering acquiring AT&T Wireless Services Inc., the third-largest U.S. wireless carrier. But people close to Vodafone said the company has also explored – at least theoretically – what some have dubbed the Big Bang theory: the carrier could simply buy all of Verizon Communications Inc., keep the wireless business and spin off the rest of the company.

Id.

23. See *And Then Came the Europeans*, *The Economist* (Mar. 11, 1999) (detailing Siemens' purchases of smaller American manufacturers and describing European telecommunications companies' strategies for expansion into the U.S. market).

24. See David Schepp, *Alcatel-Lucent Deal Faces Obstacles*, <http://news.bbc.co.uk/1/hi/business/1343273.stm> (accessed Apr. 11, 2004).

25. See *The Economist*, *A Finnish Fable*, <http://tinyurl.com/2g3aa> (accessed Apr. 12, 2004). The article describes Nokia's transformation as follows:

Few would dispute the claim that Nokia has been Europe's outstanding business success story of the past decade. A couple of decades ago, it was a stodgy Finnish conglomerate, making everything from rubber boots and cables to lavatory paper and televisions. Even in that form, it had come some way from its start, in 1865, as a lumber mill on the banks of the Nokia river. . . . There are few cleverer or more focused companies than Nokia anywhere. . . . 'Finns live in a cold climate: we have to be adaptable to survive.'

Id.

26. See Nokia, *Nokia Mediamaster 100 S*, <http://www.nokia.com/nokia/0,8764,28147,00.html> (accessed Apr. 12, 2004) (describing a new product designed for digital television reception).

27. Scott Moritz, *Nokia Back in the Game with N-Gage*, <http://www.thestreet.com/tech/scottmoritz/10153845.html> (accessed Apr. 14, 2004). Moritz describes the Nokia N-Gage product and the company's amazing ability to innovate. *Id.* According to Moritz, Nokia's game launch is an example of the company's "ability to respond quickly to the fickle tastes of a dynamic market." *Id.*

munications companies are unquestionably a force to be reckoned with. How do the success stories of European equipment and service providers relate to the future of European spectrum management? As we will see, looking to the past will help us to predict the future.

Technology-related concerns were not a major consideration of the 1957 Treaty of Rome, which established the European Economic Community ("EEC"). In fact, the "information society" infrastructure that now forms a central part of the European Union policymaking process was then viewed as a sovereign function to be reserved for the member states.²⁸ Telecommunications and frequency management were viewed as "natural monopolies," and it was commonly held that the state must retain *complete control* over networks in order to serve the public and to ensure policy objectives like universal service were met.²⁹ Of course, in 1957 the only real technology networks were those for television, radio, and voice telephony, and, not surprisingly, the Treaty of Rome did not contain any special provisions for telecommunications networks.³⁰ However, little more than one year after the Treaty of Rome was passed, Europe decided to organize a meeting to discuss telecommunications (and in particular, frequency) coordination efforts, which eventually led to a regular conference called the European Conference of Postal and Telecommunications Administrations ("CEPT"). This conference set the stage for a policy agenda that continues through today.³¹

28. See Simon Underwood, *The Information Society and Telecommunications Policy*, in Guide to EU Policies 270 (Glöckner, et. al., eds., Blackstone Press 1998).

29. *Id.*

30. Also note that Article 90 (now Article 86 after the renumbering) of the Treaty of the European Community gave states the opportunity to limit competition rules for telecommunications services, which are considered to be "services of general economic interest." This Article was later superceded by the *Competition Directive* (96/19/EC) and more recently the *Liberalization Directive* (2002/77/EC).

31. The Conférence Européenne des Postes et Télécommunications ("CEPT") was founded in 1959, and it included a broader range of members than the signatories to the Treaty of Rome. For example, Switzerland, Turkey, and Spain (then under the Franco regime) were members of CEPT, but they were not signatories of the Treaty of Rome. The CEPT grew to include former East Bloc countries only after the 1990s. A complete list of the signatories and the dates that they joined the CEPT is as follows: 1959, Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland, and Turkey; 1963, Cyprus, Liechtenstein, and Vatican; 1967, San Marino; 1969, Monaco; 1970, Malta; 1990, Bulgaria, Hungary, Poland, and Romania; 1991, Albania; 1992, Croatia and Lithuania; 1993, Czech Republic, Estonia, Moldova, and Slovakia, and Slovenia; 1994, Bosnia Herzegovina, Latvia, and Russia; 1995, Andorra, Macedonia, Ukraine; 2001, Azerbaijan; 2002, Serbia and Montenegro; and 2003, Belarus. See CEPT, *European Conference of Postal and Telecommunications Administrations*, <http://www.cept.org> (accessed Mar. 31, 2005). See BT Archives, *Events in Telecommunications*, <http://www.bt.com/archives/history/19461959.htm> (accessed Apr. 27, 2005).

C. THE EUROPEAN APPROACH TO SPECTRUM MANAGEMENT

Unlike the United States, where all frequency-coordination measures are taken up by a federal oversight group [the Federal Communications Commission ("FCC") or the National Telecommunications and Information Administration ("NTIA")],³² Europe still manages its frequencies at the state level through its National Regulatory Agencies ("NRAs").³³ In the past, such a management role might have been incorporated as a function of the state-run PTT agency or defense ministry; however, the spectrum management function within the European Union is required to be distinct from that of the former PTTs (that is, spectrum management must not be carried out by a current network operator).³⁴

In most countries, the NRAs manage only the spectrum allocated for civil use (which is akin to the functioning of the FCC), and within that scope government organizations such as the police force and internal security services are sometimes also involved.³⁵ Military use of the spectrum is generally controlled by the national ministries of defense, which, in practice, means that thirty to fifty percent of the usable radio spectrum is managed by bodies other than the NRAs.³⁶ Regulation of military frequency use is carried out by military defense organizations in connection with military alliances such as the North Atlantic Treaty Organization ("NATO"), though coordination of spectrum management

32. The FCC is responsible for civil coordination of the spectrum, while the NTIA deals with governmental ownership of the spectrum. See Notice of Inquiry, *United States Spectrum Management Policy For the 21st Century*, <http://www.ntia.doc.gov/osmhome/spectrumreform/noticeOfInquiry.htm> (Feb. 2, 2004) (describing the respective roles of the FCC and the NTIA and proposing further collaboration between the two).

33. See Viktor Mayer-Schoenberger and Mathias Strasser, *A Closer Look at Telecom Deregulation: The European Advantage*, 12 Harv. J.L. & Tech. 561, 581-82 (1999) (describing the functioning of the European NRAs and their correlation with the liberalization movement).

34. In the past, many of the PTTs operated telephone networks *and* were state-run organizations with close ties to other state-run functions (*e.g.*, the allocation of frequencies). See Steven Dov Lando, *The European Community's Road to Telecommunications Deregulation*, 62 Fordham L. Rev. 2159, 2177 (1994) (describing the role of the PTTs and noting the European laws that required splitting certain responsibilities: "The Services Directive addressed the problem of the PTTs' being both referee and player in the telecommunications markets by requiring a body independent of the telecommunications organization to control certain licenses, specifications, frequency allocations, and surveillance of usage conditions. These provisions responded to the concern that PTTs suffered from inherent conflicts of interest, and challenged the long-standing tradition that gave the PTTs free reign in the telecommunications markets").

35. See generally, Robert Queck, *The Future of National Telecommunications Regulatory Authorities*, in 2 *The Journal of Policy, Regulation and Strategy for Telecommunications Information and Media* 251, 259 (2000).

36. *Id.*

functions between the NRAs and NATO differs on a country-by-country basis.³⁷

D. EUROPEAN HARMONIZATION

The rationale for European Community involvement in frequency management stems from the underlying objectives of the European Union set forth in the Treaty of Rome³⁸ and the Maastricht Treaty.³⁹ These treaties provide that the European Union shall develop an internal market that allows the free movement of goods and services in order to ensure that competition in the internal market is not distorted and that trans-European networks are created.⁴⁰ Thus, radio frequency management has a European-wide character to it, and the European Union sees great value in providing transparent, non-discriminatory access to the wireless spectrum.⁴¹ The European Union's action in this regard is constrained only by concepts of subsidiarity,⁴² proportional-

37. See Richard E. Wiley, *The Media and The Communications Revolution: An Overview of the Regulatory Framework and Developing Trends*, PLI Order No. G4-3868, Nov. 7-8, 1991, 326PLI/Pat 469, 626 (describing the roles of various organizations and NATO in frequency coordination: "the North Atlantic Treaty Organization (NATO), for example, practices multilateral spectrum management. Frequently, countries engage in bilateral negotiations and agreements to accomplish their spectrum management goals").

38. *Treaty of Rome* (EC/EEC Treaty), Mar. 25, 1957, 298 U.N.T.S. 11.

39. *Treaty on the European Union* (TEU) signed at Maastricht on Feb. 7, 1992, 1992 O.J. (C 191) 1, (C 224) 1. The Treaty on European Union became effective Nov. 1, 1993.

40. See Milda K. Hedblom and William B. Barrison, *An Uncertain Sound: The European Union's Plan for the Information Society*, 12-WTR Comm. Law. 15, 18 (Winter 1995) (describing the European Council's efforts to create trans-European networks through satellite technology: "The Council took note of the intention of the Commission to consider its authority under the Treaty of Rome to suppress restrictions on access to space capacity"); see generally, Lisa L. Garrett, *Commerce Versus Culture: The Battle Between the United States and the European Union over Audiovisual Trade Policies*, 19 N.C. J. Int'l L. & Com. Reg. 553, 557 (Summer 1994) (describing the broad influence of the Treaty of Rome on trans-European networks and audiovisual initiatives).

41. See Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a Regulatory Framework for Radio Spectrum Policy in the European Community, enacted Apr. 24, 2002, O.J. L 108/1. (describing the purpose in one of the recitals of the decision as follows: "A policy and legal framework . . . needs to be created in the Community in order to ensure coordination of policy approaches and, where appropriate, harmonized conditions with regard to the availability and efficient use of radio spectrum necessary for the functioning of the internal market in Community policy areas." Id., at Recital 2).

42. Under the subsidiarity principle—arguably a form of federalism—the European Union shall only take action if and only if the objectives intended to be achieved cannot be "sufficiently achieved by the Member States." See Stephen Weatherhill & Paul Beaumont, *EU Law. The Essential Guide to the Legal Workings of the European Union* 27-32 (Penguin Books 1999) [hereinafter Weatherhill & Beaumont, *EU Law*] (describing the role of the subsidiarity principle).

ity,⁴³ and non-discrimination.⁴⁴ These concepts will be discussed below.

In 1990, Council Resolution 90/C 166/02 set out the basic approach to frequency planning, allocation, and coordination at the European Union level.⁴⁵ The Resolution foresaw that the framework for spectrum management harmonization would be managed by the CEPT, which also set up the European Radiocommunications Office (“ERO”), a permanent body that facilitates the European-level coordination of spectrum management issues. (The functioning of the ERO is explored further below.) Further, the CEPT and the ERO are expected to coordinate closely with industry, users, and standards-setting bodies (e.g., ETSI). The Resolution requires that the CEPT have sufficient resources to undertake its activities efficiently, respond rapidly to the demands of industry and government, and make long-term plans for spectrum use.⁴⁶ Finally, the CEPT provides the principle framework used by the European Union to prepare common positions for presentation at ITU conferences.⁴⁷

In 1992, the European Union passed Council Resolution 92/C 318/01, which reinforced its support of the CEPT and determined that the CEPT, rather than a separate body within the European Union, would be the primary mechanism for spectrum management.⁴⁸ As we will see below, the European Union recently took further steps towards asserting more direct control of the spectrum by passing the Radio Spectrum Deci-

43. The concept of proportionality requires that European Union action must be necessary in order to attain the particular objective. The concepts of proportionality and subsidiarity are closely related. Whereas subsidiarity constitutes a limitation on European Union powers with respect to member states, proportionality is applied between the European Union and its citizens. *Id.* at 527.

44. A non-discrimination clause is found in Article 6 of the EC Treaty, which requires that “any discrimination on the grounds of nationality shall be prohibited.” Thus, Germany may not grant preference to wireless operators from Germany, and it must open up the markets for investment from all other European states.

45. The Council of the European Communities, *Council Resolution of 28 June 1990 on the Strengthening of the Europe-Wide Cooperation on Radio Frequencies, in Particular with Regard to Services with a Pan-European Dimension (90/C 166/02)*, <http://europa.eu.int/ISPO/infosoc/legreg/docs/90c16602.html> (accessed Mar. 31, 2005).

46. *Id.* (as stated in the recitals: “Whereas, therefore, the current mechanisms set up by CEPT should be equipped with the necessary resources to undertake a long-term analysis of frequency requirements, taking account of market demand, standards requirements and development of products and the requirements of other users of the radio spectrum”).

47. *Id.* at ¶ 4 (describing the coordination role as follows: “The European Union shall develop common European positions in relation to the use of the frequency spectrum concerning international frequency harmonization, in particular with regard to the ITU and its relevant administrative radio conferences, using mechanisms set up by CEPT”).

48. The Council of the European Communities, *Council Resolution of 19 November 1992 on the Implementation in the Community of the European Radiocommunications Committee Decisions (92/C 318/01)*, <http://europa.eu.int/ISPO/infosoc/legreg/docs/92c31801.html> (accessed Mar. 31, 2004) [hereinafter *Council Resolution 92/C 318/01*].

sion.⁴⁹ Thus, the 1992 Resolution intended that CEPT resolutions—called European Radiocommunications Committee (“ERC”) Decisions—would provide the primary means of ensuring the provision of frequencies for European-wide radio services.⁵⁰ These ERC Decisions would be subject to integration with additional working methods, including input and consultation from various unspecified parties that may from time to time include ETSI and the European Commission.⁵¹ In summary, the Resolution left many of the details to be developed through a consultative process among the member states, ETSI, the CEPT and the Commission. Clearly, however, the NRAs and the European member-state governments preferred that harmonization would be carried out through the CEPT rather than through a separate European Union organization.

Following the 1992 Resolution, the European Union produced a Communication on a new approach to frequency coordination in Europe.⁵² This Communication set forth a plan for what would later form aspects of the new telecommunications framework (see the Appendix for further details). The first objective of this plan was to secure certain radio frequencies for implementation and operation in order to encourage competition within Community-wide trans-European systems and services and to foster the creation of an internal market for radio communications services and equipment. The second objective was to allow the creation of Community-wide markets and aggregations in order to achieve economies of scale for the introduction of new equipment, particularly equipment that had been harmonized to meet European stan-

49. ANACOM, *Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a Regulatory Framework for Radio Spectrum Policy in the European Community*, <http://www.icp.pt/txt/template20.jsp?categoryId=58697&contentId=93373> (accessed Mar. 31, 2005) [hereinafter: Radio Spectrum Decision].

50. *Council Resolution 92/C318/01*, *supra* n. 49, at ¶ 7 (having established that the CEPT decisions are implemented through the European Radiocommunications Office, the Resolution “[I]nvides the Commission and the Member States and the CEPT to support the further development of the new framework set up by the CEPT, including the setting up of the European Radiocommunications Office on the basis of an appropriate statute, making available all the resources necessary to ensure the efficiency of its operation and the rapidity of its response to demands, in the light of the obligations of the Member States under the Community law in particular competition rules and the general policy goals”).

51. *Council Resolution 92/C 318/01*, *supra* n. 49, at ¶ 4. The “ERC is developing working methods to allow wide consultation with telecommunication organizations and other service providers, industry and users, and cooperation and interaction with the European Telecommunications Standards Institute (“ETSI”) and the Commission of the European Communities.” *Id.*

52. Eur-Lex, *Communication from the Commission Concerning a Proposal for a Council Decision on the Implementation by the Member States of Measures Concerning Radio Frequencies: A New Approach to the Coordination of Radio Frequencies in the Community*, COM (93) 382 O.J. C 266, 01/10/1993 0011, <http://europa.eu.int/eur-lex/lex/Notice.do?val=197485&lang=sl&checktexte=checkbox&pos=1&page=1> (accessed Apr. 15, 2005).

dards. The third objective was to ensure a common European approach to the ITU conferences in order to safeguard European interests at the international level.

In addition to these three objectives, the Communication included a proposed Council Decision that suggested that European-level action would be limited to that which was necessary to achieve community action (thus keeping in line with the subsidiarity and proportionality principles). Where required, action would be undertaken selectively in recognition of the fact that support measures would be preferred to systematic harmonization. Accordingly, the plan expressed a preference for upholding the continued strength of the NRAs. Moreover, the proposal suggested that the ERO would take a primary role in the identification of Europe-wide frequency needs, and it empowered the ERC Decisions secondarily by stating that European action would only be undertaken if the Decisions were not implemented by the member states or if they were not implemented within a reasonable timeframe. However, the proposal did not define the terms of such a timeframe, and it in fact left a number of issues up for debate.

In 1994, the European Commission published a Green Paper on Mobile and Personal Communications,⁵³ and soon thereafter, in June 1995, the Council adopted a resolution stipulating that a more balanced allocation of the spectrum should be sought.⁵⁴ As the resolution indicated, such an allocation would need to occur within the framework of the activities of the ERC and in accordance with the Council Resolution of 1990.⁵⁵ The resolution also noted the possibility of using the ERC Decision mechanism to find suitable bands for mobile and personal communications technologies.⁵⁶ However, the resolution did not offer any concrete proposals for determining which bands should be allocated to which services, nor did it provide guidance on how users might migrate between bands. That same year, the European Parliament passed a resolution that supported the Green Paper proposals and that pointed out the need to establish a regulatory authority to manage frequencies at a European

53. Green Paper on Mobile and Personal Communications on a Common Approach in the Field of Mobile and Personal Communications in the European Union.

54. Eur-Lex, *Council Resolution of 29 June 1995 On The Further Development of Mobile and Personal Communications in the European Union 95/C 188/02*, [http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexdoc!prod!CELEXnumdoc&lg=EN&numdoc=31995Y0722\(02\)&model=lex](http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexdoc!prod!CELEXnumdoc&lg=EN&numdoc=31995Y0722(02)&model=lex) (accessed Apr. 15, 2005).

55. The first recital of the 1995 Resolution cites the previous work done by the Council, including a footnote reference to the 1990 resolution, it references "framework of the activities of the European Radiocommunications Committee (ERC) and in accordance with Council resolution 90/C 166/04 of 28 June 1990." *Id.* at ¶ 3(h). Further, the 1995 Resolution specifically built upon "the Commission's intention of supporting the creation of a European Mobile and Personal Communications Services Forum." *Id.* at ¶ 6.

56. *Id.* at ¶ 3(h).

level.⁵⁷ Although there is no clear evidence of frustration, one might surmise that the passage of this resolution was spurred by the Parliament's frustration that it had little direct input into ERO activities and that it had little say in the ERO role of frequency management.

The tides, then, had already started to shift by the time the European Union passed the Council Decision on Satellite Personal-Communication Services in 1997.⁵⁸ Article 3 of this Decision set out an approach for cooperation between the European Union and the CEPT under which the European Commission would provide the CEPT and the ERO with "mandates" for harmonizing frequency use and with associated conditions attached to general authorizations.⁵⁹ This process would start with mandates regarding satellite personal communications services ("S-PCS"). Although the Decision only remained in force for three years, it was the first to set the tone for future actions concerning direct European Union involvement through this "mandate" structure.⁶⁰

All told, since 1987 the Council, in cooperation with the European Parliament, has adopted fifteen directives and decisions that are either directly or indirectly related to spectrum management at the pan-European level (in fact, most have been adopted in the last few years). Table 1 describes these fifteen directives and decisions.

Table 1 European Council Directives and Decisions, 1987 to the Present

Date	Decision or Directive	Description
6/25/87	Council Directive 87/372/EEC	Deals with frequency bands to be reserved for the coordinated introduction of public pan-European cellular digital land-based mobile communications in the Community ("GSM").

57. Resolution of the Commission, Communication to the European Parliament and the Council, *Towards the Personal Communications Environment: Green Paper on a Common Approach in the Field of Mobile and Personal Communications in the European Union* (COM(94)-145-C4-0061/94) and on the *Commission Communication to the European Parliament and the Council on the Consultation on the Green Paper on Mobile and Personal Communications* (COM(94)0492-C4-0046/95), A4-0097/95.

58. Decision No. 710/97/EC of the European Parliament and of the Council of 24 March 1997 on a Coordinated Authorization Approach in the Field of Satellite Personal-Communication Services in the Community, Official Journal L 105, 23/04/1997, at 0004-0012 (no longer in force), <http://europa.eu.int/ISPO/infosoc/telecompolicy/en/satperen.htm> (accessed Apr. 15, 2005).

59. *Id.* at Art. 3 ("The Commission shall, in accordance with the procedure laid down in Article 7, give CEPT/Ectra and CEPT/ERC mandates to harmonize frequency use and the conditions attached to general authorizations for satellite personal-communications services, without prejudice to the scope established in the licensing Directive for individual licences. Those mandates shall define the tasks to be performed and lay down a timetable").

60. *Id.*

Table 1 European Council Directives and Decisions, 1987 to the Present

Date	Decision or Directive	Description
10/09/90	Council Directive 90/544/EEC	Deals with frequency bands designated for the coordinated introduction of pan-European land-based public radio paging in the Community ("ERMES").
6/03/91	Council Recommendation 91/288/EEC	Deals with the coordinated introduction of digital European cordless telecommunications ("DECT") into the Community.
3/24/97	Decision No. 710/97/EC of the European Parliament and of the Council	Deals with a coordinated authorization approach in the field of satellite personal-communication services in the Community.
11/28/97	Council Decision 97/838/EC	Concerning the conclusion on behalf of the European Community, as regards matters within its competence, of the results of the WTO negotiations on basic telecommunications services (OJ L 347, dated December 18, 1997).
6/22/98	Directive 98/34/EC of the European Parliament and of the Council	Establishing a procedure for the provision of information in the field of technical standards and regulations (OJ L 204, dated July 21, 1998).
12/14/98	Decision No. 128/1999/EC of the European Parliament and of the Council	Concerning the coordinated introduction of a third-generation mobile and wireless communications system [Universal Mobile Telecommunications System ("UMTS")] in the Community.
3/09/99	Directive 1999/5/EC of the European Parliament and of the Council	Concerning radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity [Radio and Telecommunications Terminal Equipment ("RTTE") Directive].
03/07/02	Directive 2002/19/EC of the European Parliament and of the Council	Concerning access to and interconnection of electronic communications networks and associated facilities.
03/07/02	Directive 2002/20/EC of the European Parliament and of the Council	Concerning the authorization of electronic communications networks and services.
03/07/02	Directive 2002/21/EC of the European Parliament and of the Council	Concerning a common regulatory framework for electronic communications networks and services.
03/07/02	Decision No. 676/2002/EC of the European Parliament and of the Council	Concerning a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision) (OJ L108/1, dated April 24, 2002).
07/26/02	Commission Decision 2002/622/EC	Establishing a Radio Spectrum Policy Group (OJ L 198/49, dated July 27, 2002).
07/29/02	Commission Decision 2002/622/EC	Establishing a Radio Spectrum Policy Group (Press Release IP/02/1171).

Table 1 European Council Directives and Decisions, 1987 to the Present

Date	Decision or Directive	Description
3/20/03	Commission Recommendation	Concerning the harmonization of the provision of public R-LAN access to public electronic communications networks and services in the Community (OJ L78/12, dated March 25, 2003).

The Radio Spectrum Decision has already had (and will continue to have) a significant impact on telecommunications and radio spectrum policy. We will discuss the role of this Decision (together with the “new framework”) in Section 0. As we will see, the European Union has consistently attempted to increase its role directly at the international level, specifically with regard to the role it plays in World Radiocommunications Conferences (“WRCs”) at the ITU level. Although the European Union has only an “observer” role at the WRCs, the European Union published a Communication at the 1997 WRC that set the stage for more direct interaction.⁶¹ The European Council responded positively to this Communication, and it invited the Commission to set up further coordination and contact with the CEPT and the ERO.⁶²

E. KEY ACTORS IN EUROPEAN TECHNOLOGY POLICY

Several organizational entities play a role in developing general European technology policies. Although these entities are widely known within Europe, the U.S. reader may not be familiar with them, so they will be briefly described here. Europe’s key technology policy objectives are often referred to generally as the “information society,” or “IN-FOSOC.” Thus far, the European Commission has taken the lead on making sure that Europe remains at the forefront of technological developments. In fact, the Commission has always acted independently of the states (since it is part of a quasi-federal system), and it has been able to promote policies that are not constrained by the sometimes narrow views of the former national telecommunications monopolies.

1. *The Commission and Technology*

The European Commission divides its work into various Directorates-General (“DGs”).⁶³ The DGs for Telecommunications (now called

61. Communication on the World Radiocommunications Conference 1997 (WRC-97), European Commission. COM (97) 304, final Brussels, 18 June 1997.

62. Draft Council Conclusions on the Communication of the Commission Relating to the World Radiocommunications Conference 1997.

63. There are separate DGs for numerous activities, including the following: Agriculture, Budget, Competition, Development, Economic and Financial Affairs, Education and Culture, Employment and Social Affairs, Energy and Transport, Enlargement, Enterprise and Industry, Environment, EuropeAid, European Anti-Fraud Office, Eurostat, External

“Information Society and Media”),⁶⁴ Enterprise and Industry,⁶⁵ and specialized initiatives for Audiovisual⁶⁶ have the main responsibility for setting INFOSOC policy. DG Competition⁶⁷ has also played an important (and active) role in the field of telecommunications regulation.⁶⁸ While one might assume that political rivalries could undermine the possibility

Relations, Fisheries, Health and Consumer Protection, Humanitarian Aid, Information Society and Media, Internal Audit Service, Internal Market, Interpretation, Joint Research, Justice and Home Affairs, Legal Services, Personnel and Administration, Press and Communication, Publications Office, Regional Policy, Research, Secretariat General, Trade, and Translation. See EUROPA, *Directorates-General and Services*, http://europa.eu.int/comm/dgs_en.htm (accessed Mar. 31, 2005) (providing links to all the DGs).

64. See EUROPA, *Activities of the European Union: Information Society*, http://europa.eu.int/pol/infos/index_en.htm (accessed Apr. 13, 2004). The opening message on the homepage emphasizes the importance of the convergence of mobile telephony and the Internet:

Practically non-existent 15 years ago, mobile phones are everywhere. The Internet provides endless streams of online information. We are offered a bewildering array of programs and services as high-capacity digital systems bring together the formerly separate worlds of broadcasting and telecommunications. *This revolution in information technology is creating the information society* – at home, at school and at work. The European Union and its policies and actions have guided and supported the revolution since the beginning.

Id. (emphasis added).

65. See EUROPA, *Activities of the European Union: Enterprise*, http://europa.eu.int/pol/enter/index_en.htm (accessed Apr. 13, 2004). Like the Information Society homepage, the Enterprise Policy homepage emphasizes technology in its mission statement:

While modern and often successful, European business and industry cannot afford to rest on their laurels. It is a constant challenge to remain competitive *and keep up with technology*. Meeting the challenge successfully is essential for sustainable growth and for our greater prosperity. EU enterprise policy plays its part by fostering innovation, entrepreneurship and competitiveness in manufacturing and services.

Id. (emphasis added).

66. See EUROPA, *Activities of the European Union: Audiovisual*, http://europa.eu.int/pol/av/index_en.htm (accessed Mar. 31, 2005).

67. See EUROPA, *Activities of the European Union: Competition*, http://europa.eu.int/pol/comp/index_en.htm (accessed Apr. 13, 2004). Yet again, this division emphasizes technology in its mission statement:

Effective competition is crucial to an open market economy. It cuts prices, raises quality and expands customer choice. *Competition allows technological innovation to flourish*. For this to happen, fair play on the part of businesses and governments is essential. The European Commission has wide powers to make sure they stick to European Union rules on fair trade in goods and services.

Id. (emphasis added).

68. As of the completion of this article, negotiations had failed regarding a settlement in a very complicated case between Microsoft and the European Competition Authority that had been underway for almost five years. See *Sir Bill and His Dragons – Past, Present and Future*, *The Economist* (Jan. 29, 2004) (providing an overview of antitrust lawsuits against Microsoft in the United States and in Europe); see also Commission Press Release IP/04/02 (Mar. 24, 2004). The Commission has imposed a fine of EUR 497 million on Microsoft for abuse of its market power within the EU, required changes in the way that the company packages its products, and required the company to disclose interface details

of close interaction and collaboration between these DGs, for the most part the exact opposite is true. Cooperation between the DGs is widespread, as demonstrated by many groups in the development of a green paper on convergence.⁶⁹ Of course, as one might surmise, the Commissioners who lead the various departments are not always in agreement (as is the case in any democratic government system). However, opposing viewpoints are a hallmark of European policy development, and progress on INFOSOC policy initiatives continues in spite of periodic differences of opinion.

2. *Lobbies and Interest Groups*

For reasons that we will describe, European-level lobby groups are relatively underdeveloped, at least when they are compared with similar efforts in the United States. It is much more complicated to “lobby” in Europe, because of different languages, cultures, and national interests. Furthermore, in Europe many strong networks of national operators, particularly telecommunications companies, continue to be backed by state power and state investment. Deutsche Telekom’s largest investor, for example, continues to be the German government.⁷⁰ Large companies such as Deutsche Telekom and UK’s Vodafone have strong lobbies and entire departments responsible for garnering support for their efforts, and they regularly participate in spectrum coordination meetings (often referred to as spectrum trading “workshops”).⁷¹

F. EUROPEAN STANDARDS SETTING

In the 1980s, nearly every European country had its own technological standards for products ranging from telephones to electrical appliances. At the outset of the 1990s, for example, the European Union still had not reached a decision on what a common electrical plug would look

of its Windows Media Player to competitors. In a Press Release, Competition DG Mario Monti emphasized that

[d]ominant companies have a special responsibility to ensure that the way they do business doesn’t prevent competition on the merits and does not harm consumers and innovation . . . [our] decision restores the conditions for fair competition in the markets concerned and establish clear principles for the future conduct of a company with such a strong dominant position.

69. *Green Paper on the Convergence of the Telecommunications, Media and Information Technology Sectors, and the Implications for Regulation*, ip/97/1073, 3 (Dec. 1997).

70. See Mark Landler, *Progress at Deutsche Telekom After Returning to Its Roots*, N.Y. Times W1 (May 18, 2004) (discussing the protection from competition that Deutsche Telekom still enjoys since the government owns 43% of its shares).

71. See e.g., *Workshop on Frequency Spectrum Management in Telecommunications*, May 7 2003 at Tilburg University (Netherlands), proceedings available at <http://www.tilburguniversity.nl/tilec/events/conferences/07052003/> (accessed Apr 16, 2005).

like⁷² (e.g., a hair dryer purchased in France would not work in England without use of a special adaptor). Thus, in order for these different countries to function as a single economic unit, it was determined that various European-wide standards needed to be set.⁷³ In its Green Paper on the development of a Community Telecommunications Policy (1987), the European Commission undertook a similar approach with regard to the standardization of telecommunications, establishing ETSI so that it could work with the other bodies that had already developed electrical standards, such as the European Committee for Normalization ("CEN") and the European Committee for Electrotechnical Standardization ("CENELEC").⁷⁴ Earlier, we mentioned that strong communication plays a critical role in helping the various European institutions work together. This is certainly the case for CENELEC,⁷⁵ which is expected to collaborate closely with the ERO (based 1,058 kilometers away in Copenhagen, Denmark) and ETSI (based 1,174 kilometers away in Sophia Antipolis, France).⁷⁶

72. See *Commission Green Paper on the Development of European Standardization: Action for Faster Technological Integration in Europe*, COM(90) 456, 2 (Oct. 8, 1990). The Green Paper discusses electrical plugs, considering even the most basic concepts such as what an electrical plug should look like:

Let us take domestic electrical appliances as an example. Technical safety requires the presence in the electrical lead of a third wire, connected to the earth. . . . The Commission will see whether the twelve Member States all require this third wire . . . if not, Community legislation will provide for an earth connection for this type of appliance throughout the Community, without going into the details of whether the third pole should be round or square, or placed in the middle or at the edge of the plug.

Id.

73. The European Community passed Council Directive 83/189/EEC on March 28, 1983. Council Directive 83/189/EEC (Mar. 28, 1983). The Directive mandated cooperation between the members of CEN and CENELEC and set forth the first significant mechanism to standardization and unification of various standards throughout the European countries. *Id.*

74. "CEN" stands for Comité Européen de Normalisation, and CENELEC is the corresponding body for electrical standards.

75. CEN and CENELEC were established in the 1960s. According to the Commission Green Paper on the Development of European Standardization (1990), the Commission should continue to encourage industry to work with these centralized interfaces in order to promote European standards throughout the world.

76. Note that the U.S. standards-setting equivalent organizations are located—almost without exception—in the same city as the federal government: Washington D.C. Thus, Washington D.C. is the home for the government's FCC and NTIA, as well as the independent (but influential) American National Standards Institute (ANSI), the Institute for Electrical and Electronics Engineers (IEEE), and dozens of other associations and lobbying groups. For better or for worse, it is possible (and even common practice) for lobbyists and interested parties to travel between the organizations within a given day or week in order to promote their interests. Because of geographical splintering of institutions, however, lobbying of this nature would not be possible in the European Union.

In sum, standardization has recently moved into the realm of the wireless spectrum. As discussed below, the European Union established the Radio Spectrum Committee and the Radio Spectrum Policy Group ("RSPG") in 1992, and these groups are expected to continue to promote standards in areas of wireless communications.

G. THE EVOLUTION OF THE ROLE OF THE MINISTRIES OF POST,
TELEGRAPH AND TELEPHONE

Until the early 1980s, European telecommunications were managed by iron-clad state-run monopolies that controlled access to telecommunications services (and to many other services, such as banking and mail delivery) through a chokehold maintained by the PTT ministries. The shackles began to shake loose in 1979 when a proposal advanced to the European Commission recommended the formation of joint standards and the long-term development of an integrated digital network throughout the European Community.⁷⁷ This proposal led to the development of two initiatives known as ESPRIT (European Strategic Program for Research and Development in Information Technology)⁷⁸ and RACE (Research and Development in Advanced Communications Technologies for Europe). These development programs underscored the fact that the privileged status of the PTTs must ultimately give way to market forces if Europe is to remain competitive in the worldwide technology marketplace. In the early 1980s, Europe's PTTs began to realize that an integrated broadband network could not be developed unless they relinquished monopolistic power in favor of concerted joint efforts.⁷⁹ It thus became clear that if the directors of the PTTs did not foster change themselves, they would be forced to do so. As professor Wayne Sandholtz notes, the RACE initiative and its preceding efforts together formed the "hook that eventually brought in the [PTTs]."⁸⁰

However, by the late 1980s, *all* of the members of the CEPT committee for GSM specifications were state-owned PTTs, with the exception of a few members from the UK (*e.g.*, Cellnet, and Vodafone).⁸¹ The re-

77. See Wayne Sandholtz, *High-Tech Europe: The Politics of International Cooperation* 226 (University of California Press 1993).

78. ESPRIT is by far the largest of the Research and Technological Development ("RTD") programs established by the European Commission. It has involved more than 9,000 organizations of various types throughout Europe. See generally *Esprit, Welcome to Esprit, the EU Information Technologies Programme*, <http://www.cordis.lu/esprit/home.html> (accessed Feb. 28, 2004).

79. Sandholtz, *supra* n. 77, at 240.

80. *Id.*

81. See Friedhelm Hillebrand, *GSM and UMTS: The Creation of Global Mobile Communications* 287 (Friedhelm Hillebrand ed., 2001).

marks of Alan Cox, a commentator who participated in many of the early GSM specifications, are telling:

[S]ome were from old-fashioned PTTs who did not permit most staff to use mobile phones since they were for the bosses only! Thus some delegates [who were defining technical specifications] had never used a mobile [phone] before, yet [they] were being asked to specify how the next generation [of phones] would work.⁸²

As Cox indicates, the individuals who were assigned the task of developing the technology specifications had in many cases no familiarity with that technology whatsoever. It soon became apparent to all involved that the PTTs needed to evolve into a smaller, more agile, more efficient, and more market-based organization.

As mentioned earlier, in 1987 the Commission launched an inquiry (a so-called “Green Paper”)⁸³ on telecommunications policy.⁸⁴ The Green Paper insisted that liberalization of the telecommunications industry in Europe was required in order for Europe to maintain a competitive edge worldwide and for any of the ideals of RACE to be realized, and the objectives that it set forth are still valid today.⁸⁵ The PTTs were slow to react, but they knew that their hand had been forced. Thus, the Green Paper included a proposal for a compromise by the government monopolists: The PTTs would be allowed to retain monopoly rights over voice telephony and networks, and services would become open to private providers.⁸⁶ Further, the Green Paper insisted on an open network provision that outlined the premise for a common set of standards and interfaces for the operation of a transnational network. This provision, in turn, gave birth to Commission initiatives to lobby the CEPT to create ETSI,

82. *Id.*

83. Green Papers are discussion papers published by the Commission on a specific policy area. They are primarily documents addressed to interested parties—organizations and individuals—who are invited to participate in a process of consultation and debate. In some cases, these documents provide an impetus for subsequent legislation. Most Green Papers published since 1984 are available online at an EU archived Web site. EUROPA, *Official Document: Green Papers*, http://europa.eu.int/comm/off/green/index_en.htm (accessed Oct. 4, 2003).

84. *Towards a Dynamic European Economy. Green Paper on the Development of the Common Market for Telecommunications Services and Equipment*, COM(87)290 (June 1987).

85. See SCADPlus, *Information Society: Introduction*, <http://europa.eu.int/scadplus/leg/en/lvb/l24100.htm> (accessed April 17, 2005) (describing the history of the policy-making efforts in Europe and highlighting the important objectives of the 1987 Green Paper as follows: “the telecommunications policy was launched in 1987 through a Green Paper on telecommunications liberalisation. It pursued three major objectives which retain all their validity today: [1] to liberalise the markets segments under monopoly; [2] to harmonize the European telecommunications sector through common rules and standards; [and] [3] to strictly apply competition rules to liberalised market segments to prevent collusive agreements and the creation and abuse of dominant positions.”

86. *See Id.*

which would direct standards-setting efforts. ETSI was the first truly coordinated European standards-setting body for telecommunications that was entrusted with the task of collaborating closely, not just with PTTs, but also with representatives from private industry.

The proposal to open up value-added telecommunications services and terminal equipment to the free market was controversial among several PTTs, which hoped to retain their monopolies. A legal battle ensued, and the European Commission took the position that enterprises that claim "exclusive or special rights" to provide such services must adhere to the Commission's Treaty of Rome provisions on competition.⁸⁷ According to the Commission, the PTT monopolies violated the treaty's antitrust terms (as defined by Article 86).⁸⁸ Various PTTs challenged this position at the European Court of Justice, but the position was nonetheless upheld.⁸⁹ As a result, it was determined that the PTTs would be abolished.⁹⁰

H. THE RACE PROGRAM AND COORDINATED TECHNOLOGY POLICY

European policymakers realized that by setting up an ambitious technology objective—the development of a pan-European market for telecommunications services and equipment—they would motivate major operators, manufacturers, and users to join together in the pursuit of common beneficial goals, including standardization, and later, *eEurope* and the now famous "Information Society" ("INFOSOC"). European economic and technological growth, however, would require much more than standardization of plugs and appliances, and in 1985 a precursor to RACE (called "Project R 1043") was launched in order to lay the groundwork for many phases of RACE program development meetings. Be-

87. See Council Resolution of 30 June 1988 on the development of the common market for telecommunications services and equipment up to 1992, 88/C 257/01, O.J. 257, 4/10/1988 p. 0001-0003, available at [http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31988Y1004\(01\):EN:HTML](http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31988Y1004(01):EN:HTML) (accessed Apr 16, 2005), (referencing the 1987 Green Paper and stating that the "major policy goals" for the European Union include "creating or ensuring Community-wide network integrity as one of the essential elements for a common market in telecommunications services and equipment, working on the principle of full interconnectivity between all public networks concerned in the Community." *Id.* at Art. 1).

88. Article 86 is one of the key competition law provisions in European Law that deals with the interaction of state-induced monopolies and exclusive rights. Full text available at http://europa.eu.int/comm/competition/legislation/treaties/ec/art86_en.html (accessed Apr. 16, 2005).

89. Spain, France, Belgium, and Italy joined together in an ECJ proceeding. See ECJ, Judgment of 17 November 1992, Cases C-271, C-281 and C289/90, *Spain v. Commission* (1992), ECR I-5833; see also Pierre Larouche, *Competition Law and Regulation in European Telecommunications* 48-49 (Hart Publg. 2000) (describing the challenges and proceedings).

90. See generally Weatherhill & Beaumont, *supra* n. 42, at 1008-1012.

cause of the rapid growth of telecommunications in Europe, several European industry ministers wanted to first launch this “definition phase”⁹¹ of the RACE program.⁹² This phase established the need for and the subsequent scope of a collaborative European framework in telecommunications research and development, and shortly thereafter, in 1987, Europe officially launched the RACE program within the Second Framework for Research and Development.⁹³ The main objective of RACE was to introduce Integrated Broadband Communications (IBC) and to initiate the shift towards Europe-wide services by 1995. This definition phase involved the following objectives:

1. Support the formation of a single European market for telecommunications equipment and services.
2. Promote the European Community’s telecommunications industry.
3. Enable European network operators to compete under the best possible conditions.
4. Enable a critical number of member states to introduce commercially viable IBC services.⁹⁴

Well before the commercial introduction of GSM (*i.e.*, in 1991-92),⁹⁵ the RACE community recognized that a new generation of mobile technology and services would be required after the turn of the century. In the 1980s things started gaining momentum, and a work plan was developed in June 1987,⁹⁶ whereby about twenty people, including industrial organization representatives, telecommunications operators, PTTs, academics, and others, collaborated in order to cement common objectives for technological deployment (including GSM and other characteristics of mobile wireless telephony). Goals of the project included the provision of speech and low-to-medium data services, with virtually complete geographical coverage, as well as the creation of plans to target very high data rate services.⁹⁷ The project also specified various standards, interface parameters, and signaling and networking infrastructures, as well

91. Council decision of 25 July 1985 on a definition phase for a Community action in the field of telecommunications technologies, 85/372/EEC (July 25, 1985).

92. Hillebrand, *supra* n. 81, at 115 (illustrating the details found in this article).

93. Council Decision of 14 December 1987 on a Community Program in the Field of Telecommunications Technologies: R&R in Advanced Communications Technologies in Europe (RACE Program), 88/28/EEC; OJ L16/35 (Jan. 21, 1988).

94. *Id.*

95. See GSM World, *History of GSM*, <http://www.gsmworld.com/about/history/index.shtml> (accessed Apr. 27, 2005).

96. Call for Proposals on Mobile Communications, RACE Program.

97. See Noam, Telecommunications in Europe, cited *supra*, n. 10, at 309 (describing the objectives of RACE and its forward-looking objectives towards broadband and high-speed networks).

as the preliminary requirements of the frequency spectrum.⁹⁸ In the end, the project led to the birth of the Universal Mobile Telecommunications System (“UMTS”).

By 1992, core UMTS concepts already formed the basis for further development efforts, and the project team presented its achievements in Germany in May of that year.⁹⁹¹⁰⁰ The driving motivation behind UMTS was the demand for higher quality universal coverage (because of the increased bandwidth) and more data options than those offered by GSM. The standardized aspects of GSM would apply to UMTS designs. Thus, mobile access would be guaranteed throughout the GSM footprint, both indoors and outdoors, both in cities and in rural areas. In the early 1990s, it was estimated that the UMTS penetration rate would hit fifty percent of the European market by 2005, translating into a subscriber base of 100 million.¹⁰¹

The second phase of RACE took place within the context of the Third European Framework Program. As this phase advanced, a number of new activities were launched by the mid 1990s, particularly in the communication technologies arena. These initiatives aimed to embrace new services constructed upon open standards in an attempt to continue the interoperability of protocols and to stimulate the success of European telecom providers (particularly Alcatel in France, Ericsson in Sweden, Nokia in Finland, and Siemens in Germany). At the core of the RACE program was a package of other “alphabet soup” initiatives that eventually led to the development of UMTS and Mobile Broadband Systems (“MBS”). These initiatives included the following:

- ATDMA. The Advanced Time Division Multiple Access project reviewed advances in TDMA technologies in order to provide a basis for fair comparison between Code Division Multiple Access (“CDMA”) and Time Division Multiple Access (“TDMA”).¹⁰²
- CODIT. The UMTS Code Division Testbed project sought to test the various functionalities of CDMA and to launch a test system.¹⁰³
- MAVT. The Mobile Audio-Visual Terminal project aimed to develop a joint European proposal for compression and multimedia

98. Note that these data were also published in the proceedings of the 1992 World Administrative Radio Conference (WRC-92) and were made available through the ITU database.

99. RACE Mobile Telecommunications Workshop, May 5-6, 1992, Nuremberg, Germany.

100. See Hillebrand, *supra* n. 81, at 115.

101. *Id.* at 117.

102. See ATDMA, R2084: ATDMA - Advanced TDMA Mobile Access, <http://www.cordis.lu/infowin/acts/analysys/concertation/mobility/atdma.htm> (accessed Feb. 28, 2004).

103. See CODIT, R2020: CODIT - UMTS Code Division Testbed, <http://www.cordis.lu/infowin/acts/analysys/concertation/mobility/codit.htm> (accessed Mar. 31, 2005).

standards.¹⁰⁴

- MBS. The MBS project addressed the system concepts, techniques, and technology required for the transition to the MBS, a forerunner to UMTS.¹⁰⁵
- MONET. The Mobile Network project focused on network standards, including the infrastructure and fixed aspects of launching a UMTS system.¹⁰⁶

In light of the projects listed above, the second phase of the RACE program strongly emphasized standardization and close cooperation with ETSI. Certain aspects of the program required more collaboration than others, such as frequency propagation and channel modeling, the definitions for air interfaces and antennas, modulations, architectures, protocols, etc. Without standardization in these core areas, the seamless digital wireless world that was envisioned would never have come to pass.

I. THE CONFÉRENCE EUROPÉENNE DES POSTES ET TÉLÉCOMMUNICATIONS AND THE EUROPEAN RADIOCOMMUNICATIONS OFFICE

Very little—in fact, almost nothing—can be found in academic literature about the ERO, a small, almost stealth organization¹⁰⁷ located in an understated office building in downtown Copenhagen.¹⁰⁸ The organization has a good web presence,¹⁰⁹ but because of the dearth of writing on its history, purpose, and status, some space will be dedicated in this article to it.¹¹⁰ Indeed, the ERO is a relative newcomer to international spectrum management, having been created “unofficially” in 1991 (by virtue of a temporary Memorandum of Agreement) and “officially” in

104. See MAVT, *RV2072: MAVT - The Mobile Audio-Visual Terminal*, <http://www.cordis.lu/infowin/acts/analysys/concertation/mobility/mavt.htm> (accessed Mar. 31, 2005).

105. See MBS, *R2067: MBS - Mobile Broadband System*, <http://www.cordis.lu/infowin/acts/analysys/concertation/mobility/mbs.htm> (accessed Mar. 31, 2005).

106. See MONET, *R2066: MONET - Mobil Network Project*, <http://www.cordis.lu/infowin/acts/analysys/concertation/mobility/monet.htm> (accessed Mar. 31, 2005).

107. The organization’s managers are quick to note that they work at the behest of the governments that support them (principally the European Commission and Parliament). Senior ERO staff often use the phrase “servants” to describe their manner of interaction with CEPT members (i.e., ERO staff serve at the behest of their “client” CEPT members). Interview with Soren Hess, ERO Deputy Director (Dec. 5, 2003).

108. ERO, Pleblingehus, Nansengade 19, DK-1366 Copenhagen. The office occupies about half of one floor of a multistory building that houses Danish companies and other businesses.

109. See ERO, *European Radiocommunications Office*, <http://www.ero.dk> (accessed Mar. 31, 2005) (hereinafter “Welcome to ERO”).

110. See generally Herbert Burkert, *The Post-Deregulatory Landscape in International Telecommunications Law: A Unique European Union Approach?*, 27 *Brook. J. Intl. L.* 739 (2002) (providing a good history on the CEPT and its sister committees and conferences).

1996 (after receiving funding and obtaining a permanent status). The ERO is the progeny of the CEPT, and it was established to assist in setting standards for international radio-based communications.

First, a brief word on the ERO's parent, the CEPT. The CEPT lacks formal executive power, and in order to discern the reason for this absence of high-level authority, one must look no further than the name itself: The Conference Européenne des Postes et Télécommunications is, in fact, a *conference*, not a formal entity or organization. The CEPT presidency rotates once per year, and the presidency is held by and hosted in one of the forty-five CEPT member countries.¹¹¹ Over its forty-eight years of existence,¹¹² the CEPT has never had a legal "personality" *per se*. For example, it employs no full-time staff, nor is it recognized in a legal capacity as an organization. Its infrastructure is less substantial than that of the ITU, yet like the ITU its success relies heavily on consensus and voluntary cooperation.¹¹³ The CEPT's source of power has historically been found in the strength of its member PTTs. As the PTTs have been dissolved and privatized (*e.g.*, split into NRAs, operators, and organizations like Belgium's BIPT),¹¹⁴ however, their underlying power has diminished accordingly.

The ERO thus started out almost as an experiment, perhaps one that might keep the PTT spirit alive in an otherwise dying regulatory regime that has invariably transferred supervisory authority (as well as the monopoly-owned networks, accompanying bureaucratic inefficiency, and commercial gains) from the state to private hands. The ERO was launched at practically the same time as Europe's first commercial GSM networks in 1991. Since that time, the ERO has become the official delegated authority of the CEPT for frequency and spectrum matters (even

111. In 2003, the presidency is held by the Swiss Telecommunications Regulator of the Federal Office of Communications ("OFCOM") in Biel-Bienne, Switzerland. See Office Federal De La Communication, *Page d'accueil*, <http://www.ofcom.ch> (accessed Dec. 7, 2003).

112. The CEPT was founded in 1959, two years after the Treaty of Rome was passed. See generally, CEPT, *European Conference of Postal and Telecommunications Administrations*, <http://www.cept.org> (accessed May 25, 2005).

113. See ERO, *European Radiocommunications Office: Electronic Communications Committee (ECC)*, <http://www.ero.dk/ecc> (accessed Dec. 5, 2003):

As a general rule the ECC will act by consensus, otherwise by a simple majority of votes cast, except where specific alternative provisions have been agreed. . . . Consensus is defined as the general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. Consensus does not imply unanimity.

Id.

114. BIPT is the Belgian Institute for Postal Services and Communications. See IBPT_BIPT, *Belgian Institute for Postal Services and Telecommunications*, <http://www.bipt.be> (accessed Mar. 31, 2005).

though it bore an unofficial status for its first few years).¹¹⁵ It oversees various radio and telecommunications affairs of the forty-five CEPT member countries,¹¹⁶ and it is officially linked to the CEPT's Electronic Communications Committee (ECC).¹¹⁷ The ERO provides a center of expertise for long-term planning activities, and it also acts as a focal point for consultations concerning spectrum management and regulatory matters.¹¹⁸ The ERO's "experimental basis" was initially established through a Memorandum of Understanding¹¹⁹ that defined the terms of reference for the ERO, clarified its relationship with other committees and conferences (most notably, the ECC), and outlined a preliminary funding and budgetary model.¹²⁰ In 1996, the founding Memorandum of Understanding was replaced by the "Convention for the establishment of the European Radiocommunications Office."¹²¹ Therefore, the Convention marked the establishment of the ERO, formerly a ghost-like conference of dying PTTs, as a *permanent* organization with a legal personality, an organization responsible for entering into contracts, concluding agreements with States, and engaging in full-time representa-

115. See CEPT, *CEPT Leaflet*, <http://www.cept.org/E501D406-833C-4977-8D34-D9B69723626E?frames=NO&> (accessed Mar. 31, 2005) (hereinafter "CEPT Leaflet").

116. The forty-six member administrations (as of Feb. 2005) include Albania, Andorra, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Former Yugoslav Republic of Macedonia, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Serbia and Montenegro, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and Vatican City. See *Welcome to ERO*, *supra* n. 109; see also *CEPT Leaflet*, *supra* n. 115.

117. Established in 2001, the ECC replaced the European Committee for Telecommunications Regulatory Affairs ("ECTRA") and the ERC.

118. See ERO, *European Radiocommunications Office: ECC Mission Statement and Working Arrangements*, <http://www.ero.dk/4FCA7264-41C8-406A-A5FA-20E470818BE4.W5Doc> (accessed Apr 28, 2005) (hereinafter, "ECC Mission Statement").

119. Memo of Understanding on the Creation of the European Radiocommunications Office 1991 (hereinafter "MoU") (copy on file with the author) and described in detail in the ECC Mission Statement. *Id.*

120. The MoU is quite vague in this regard. MoU Article 5 describes the "functions of the office," which are primarily consultative. MoU Article 10 requires annual budgets to be approved by a committee. *Id.*

121. The Convention for the Establishment of the European Radiocommunications Office ("ERO Convention") is dated June 23, 1993, but it only came into force on March 1, 1996, replacing the former MoU that had established the Office. In becoming contracting parties, states had the choice to either sign the Convention prior to March 1, 1996, to take effect from June 23, 1993, or to accede to the Convention after March 1, 1996. Like the MoU, the Convention is not a public document, although a copy is on file with the author. See 1.1.4.2 Convention - Anancom, <http://www.icp.pt/template12.jsp?categoryId=66669> (accessed Apr. 28, 2005) (describing the Convention); see also ERO, *ECC Mission Statement and Working Arrangements*, <http://www.ero.dk/4FCA7264-41C8-406A-A5FA-20E470818BE4.W5Doc> (accessed Apr 28, 2005).

tion of its members in radio spectrum matters. Of course, the PTTs would quickly lose these same capabilities.¹²²

Voting and rights within the ERO are weighted.¹²³ Further, states that are contracting parties to the Convention and that join the ERO do not forfeit any sovereign rights with regard to their frequency management and apportionment regimes.¹²⁴ For example, although the ERO regularly signs documents that are titled "decisions," these documents really only offer recommendations and good-faith bases for cooperation.¹²⁵ In addition, the CEPT organizations, such as the ERO and the European Telecommunications Office ("ETO") Councils, often coordinate their work with sister organizations, notably ETSI.¹²⁶ The mechanism for coordination takes place through additional, separate Memoranda of

122. ERO Convention, Article 4, "Legal Status and Privileges."

123. ERO Convention, Annex A, stipulates that voting rights are weighted as follows: France, Germany, Italy, Spain, and the United Kingdom (25 voting units each); Switzerland (15 voting units); Austria, Belgium, Denmark, Finland, Greece, Luxembourg, Netherlands, Norway, Portugal, Sweden, and Turkey (10 voting units each); Ireland (5 voting units); Albania, Czech Republic, Malta, Moldova, Monaco, Croatia, Cyprus, Hungary, Iceland, Liechtenstein, Lithuania, Poland, Romania, San Marino, Slovakia, Slovenia, and Vatican City (1 voting unit each).

124. ERO Convention, Article 18, to wit: "Nothing in this Convention shall interfere with the sovereign right of each Contracting Party to regulate its own telecommunications."

125. See *e.g.*, CEPT/ECTRA Decision of July 3, 1997 on harmonisation of authorisation conditions and coordination of procedures in the field of Satellite Personal Communications Services (S-PCS) in Europe, operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz. European Radiocommunications Office - Implementation, *ECTRA/DEC(97)02*, <http://www.ero.dk/documentation/docs/implement.asp?docid=1829> (accessed Dec. 5, 2003). The S-PCS decision has formed a general (theoretical) frequency standard throughout CEPT countries, although it is still "under study" in some countries (*e.g.*, the Czech Republic) and is only partly implemented by some other countries (*e.g.*, Turkey). Although the decision was passed in 1997, the ERO noted that as of December 5, 2003, it had been implemented by only thirteen of the CEPT's forty-five member countries. See *id.*

126. See Joel R Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules through Technology*, 76 *Tex. L. Rev.* 553, 591-92 (1998) (describing the role and functioning of ETSI as follows: "traditional standards organizations like . . . ETSI, and committees like T1 are the real political centers of Lex Informatica. Yet these groups are generally not governmental organizations. Rather, they tend to be consortia of interested persons and companies." *Id.*) The ETSI Statutes, adopted on Nov. 21, 1990, state that representatives of the Community and EFTA shall enjoy special status as "Counselors" at both the General Assembly and the Technical Assembly. Article 17 states that ETSI shall establish close working relationships with other European standards bodies. Statutes available at docbox.etsi.org/mts/mts/05-Meetings/ARCHIVE/1997/TD_MTS24/td92_297.doc (accessed Feb 25, 2003). The Statutes do not address the question of sovereignty or obligations under the EC Treaty. See generally, Council Directive of 28 June 1990 on the Establishment of the Internal Market for Telecommunications Services through the Implementation of Open Network Provision, 90/387/EEC, available at <http://europa.eu.int/ISPO/infosoc/legreg/docs/90387eec.html> (accessed Apr 29, 2005). For more on ETSI, see *infra*.

Understanding that specify procedures for collaboration in the development of standards for systems or equipment and for the harmonization of frequency bands and regulatory requirements.¹²⁷ Joint ERC, European Committee for Telecommunications Regulatory Affairs (“ECTRA”), and ITU groups also prepare for ITU Council meetings and Plenipotentiary Conferences.¹²⁸ While the framework largely remains one of cooperation and coordination, the Radio Spectrum Decision has begun to change the role of both the ERO and the CEPT, helping it to slowly evolve into more of a lawmaking and legislative effort (and, at the same time, initiating a shift from voluntary compliance to legal mandate).

1. *Consultation and Long-Term Planning*

The ERO is a classic “rule of multiple Cs” organization, meaning that it relies heavily on consensus, compromise, collaboration, and culture.¹²⁹ Since the ERO is a small organization with fewer than twenty full-time staff members,¹³⁰ it must rely heavily on the input of many other parties.¹³¹ It functions variously as a mediator, consultant, and

127. See Tapio Penkkala, Workshop, Strategic Plan for PMR/PAMR (Mar 28, 2003) at slide 7, available at <http://www.ero.dk/A9C70362-9F9D-4122-B7C0-C081397AEEEE2> (accessed Apr 28, 2005).

128. See generally, Report on the Outcome of PP-02, CEPT Electronic Communication Committee, Jan. 9, 2003, available at <http://www.ofcom.org.uk/static/archive/ra/topics/international/cept-pp-02report.doc> (accessed Apr. 28, 2005) (describing the outcome of a joint project between the CEPT and various sub groups in preparation for the ITU Pelipotentiary conference held in Marrakesh).

129. See Rob Frieden, *International Telecommunications Handbook* 9 (Artech House 1995). Mr. Frieden explains:

Both governments and carriers, which may still be government-owned, participate in the *consultative process*, in which regular meetings are held and information is shared, ostensibly to estimate demand and schedule future deployment of transmission facilities. . . . The combination of regulatory and business delegates in a variety of forums has the consequence of merging points of view and institutionalizing a role for government even in matters affecting the strategic planning of an individual carrier.

Id.

130. Per the ERO Web site, as of December 1, 2003, the total number of ERO staff is sixteen persons drawn from different CEPT countries. This number includes nine experts covering most fields within the radiocommunications and telecommunications areas and seven administrative staff members (of which two are employed on a part-time basis). The current Director is Thormod Bøe (from Norway), and the current Deputy Director is Arturas Medeisis (from Denmark). The “experts” are specialists in engineering or radio communications, and the organization relies on the input of the member states—and now, the EU Radio Spectrum Committee—for policy guidance. Interview with Soren Hess; see also *Welcome to ERO*, *supra* n. 109.

131. It does not take many people to set standards so long as the input process is well coordinated, and Europe is a forerunner in this process. See “Global Standards: Building Blocks for the Future,” Congress of the United States Office of Technology Development March 1992, available at <http://www.gtwassociates.com/answers/OTA9220.pdf> (accessed

facilitator. One of the core ERO activities involves consultation with other governments, with departments, and particularly (since the 2002 Radio Spectrum Decision) with the European Union.¹³² The ERO also provides guidance to public radiocommunications operators, manufacturers, users, private network operators, service providers, research institutes, and standards making bodies,¹³³ as well as to national, European, and international organizations whose membership has an interest in European communications matters. One of the ERO's more important activities involves its organization of a CEPT-sponsored conference (held approximately every twelve to eighteen months),¹³⁴

May 25, 2005) (noting the rapid growth of standardization in Europe at the time due to ETSI); see also John Williamson, *Raising the European Standard*, Telephony, (June 3, 1991) (noting that with a staff of fewer than thirty people in 1991, the then newly formed ETSI had quickly become one of the "world's fastest standards-making machines").

132. Communication between the ERO and the European Union has always existed, although a number of European legal measures have marked Community-level harmonization significantly, particularly since 1999. See Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, *Towards a New Framework for Electronic Communications Infrastructure and Associated Services: The 1999 Communications Review*, COM(99)539 final (Oct. 11, 1999). Other Community papers, proposed decisions, and decisions followed, such as the following: *Green Paper on Radio Spectrum Policy in the Context of European Community Policies such as Telecommunications, Broadcasting, Transport, and R&D*, COM(98)596 final (Dec. 1998); *Parliament Resolution A4-0202/99 on the Commission Green Paper on Radio Spectrum Policy in the Context of European Community Policies such as Telecommunications, Broadcasting, Transport, and R&D* (COM(98)0596 - C4-0066/99), 1999 O.J. (C 279) 72; *Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Next Steps in Radio Spectrum Policy: Results of the Public Consultation on the Green Paper*, COM(99)538 final (Oct. 11, 1999); and *Parliament Resolution A5-0122/2000 on the Commission Communication to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on "Next Steps in Radio Spectrum Policy: Results of the Public Consultation on the Green Paper"* (COM(99)538 - C5-0113/2000 - 2000/2073(COS)), 2001 O.J. (C 59) 245. Additional legal sources include the following: Results of the World Radiocommunications Conference 2000 (WRC-2000) in the Context of Radio Spectrum Policy in the European Community, COM(00)811 final and Proposal for a Decision of the European Parliament and of the Council on a Regulatory Framework for Radio Spectrum Policy in the European Community, 2000 O.J. (C 365 E) 256. This proposal later became the Radio Spectrum Decision, *supra* n. 49.

133. See John Peterson & Margaret Sharp, *Technology Policy in the European Union* 77 (Macmillan Press 1998). Note that one of the largest European standards-setting bodies is ETSI, which was created by CEPT, which is also the parent of the ERO. See *CEPT Leaflet*, *supra* n. 115 (noting that CEPT created ETSI in 1988). It is also generally said that ETSI was born out of European Community technology policy—specifically, the 1987 Green Paper on Telecommunications—and that the liberalization of telecommunications during the mid to late 1980s was considered an urgent matter. See generally ETSI, *Welcome to ETSI, The Home of ICT Standardization*, <http://www.etsi.org> (accessed Dec. 1, 2003).

134. Conference topics over the past thirteen years have included the following: Nov. 1991, A new framework for spectrum management in Europe; Nov. 1992, (a) Mobile systems, (b) Regulations: do they ease telecommunications? and (c) DSI II; Nov. 1993, (a) ERC

where topics of radio frequency allocation and telecommunications are discussed.

2. *Support for the Electronic Communications Committee*

As noted previously, the ERO works alongside the ECC, which is variously made up of different groups from the CEPT member countries. In 2001, the ERC merged with the ECTRA to form the ECC.¹³⁵ Ironically, the name “Electronic Communications Committee” does not contain the word “Europe,” perhaps reflecting the fact that the ECC is part of the CEPT, an organization that is larger than the European Union itself.¹³⁶ The ECC’s mission is to address all forms of “electronic communications,” which include “transmission, and where applicable, switching or routing, which permits the conveyance of signals by wire, radio, optical or other electromagnetic means, irrespective of the type of information conveyed.”¹³⁷

and (b) Frequency management; Nov. 1994, (a) ERC, (b) Aspects of “mobility,” and (c) Key spectrum and regulatory issues; Dec. 1995, (a) The digital revolution and (b) “Spectrum roundup”; Nov. 1996, Regulation and legislation in a liberalised market; May 1998, Competition and convergence; Mar. 1999, Globalisation of radiocommunications; Oct. 2000, (a) Global standardisation, (b) Mobile “convergence,” (c) Satellite vs. terrestrial, and (d) Results of WRC-2000. See Darko Ratkaj, *Spectrum Management in Europe, School on Radio Use for Digital and Multimedia Communications* (Trieste, Feb. 12, 2002), (available at http://wireless.ictp.trieste.it/school_2002/lectures/ratkaj/SM_in_Europe.PDF).

135. See ERO, *ECC Mission Statement and Working Arrangements*, <http://www.ero.dk/4FCA7264-41C8-406A-A5FA-20E470818BE4.W5Doc> (accessed Apr 29, 2005) (noting that the “ECC was established in September 2001 as a result of the merger between ECTRA (responsible for general telecommunications matters) and ERC (responsible for radiocommunications matters”).

136. See Gerry Oberst, *Regulatory Review: Satellite Phraseology – The Language and the Lingo*, VIA Satellite (Mar. 1, 2002) (available at <http://www.viasatellite.com>); see also TinyURL, <http://tinyurl.com/7l7jq> (describing the restructuring and noting the confusion regarding the organizational shifts). The author explains: “Many of these changing acronyms merely add a bell and a whistle in order to invent a new word. But some changes in acronyms are more important, as they point to new regulators or new legal structures.” *Id.* The author then describes the emergence of the ECC and notes that it is one of the more important shifts. *Id.*

137. Titus Spoelstra, *CRAF Handbook for Frequency Management* (European Science Foundation 2002). This definition has, itself, been somewhat harmonized within Europe since the New Framework Directive. See The European Parliament and the Council of the European Nation, *Directive 2002/21/EC of the European Parliament and of the Council of 7 Mar. 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive)*, at Article 2 (Mar. 7, 2002). Note that the Spectrum Decision, 676/2002/EC of March 7, 2002, uses a somewhat more generic definition that covers the electromagnetic range rather than defining the radio spectrum by whether or not it is used for communications: “[f]or the purposes of this Decision, radio spectrum includes radio waves in frequencies between 9 kHz and 3,000 GHz; radio waves are electromagnetic waves propagated in space without artificial guide.” *Id.*

The terms of reference for the ECC, which further clarify the Committee's objectives, include the following:

- Engage in forward planning and harmonize the efficient use of the radio spectrum, satellite orbit, and telecommunications service numbering resources in Europe so as to satisfy the requirements of European users and industry.
- Consider, develop, and draft policies on electronic communications in a European context, taking into account European and international legislation and regulations.
- Develop European common positions and proposals, as appropriate, for use in the framework of international and regional bodies.
- Implement the strategic decisions of the Assembly.
- Seek guidance from the CEPT Assembly, as necessary, and propose issues for consideration by the Assembly.
- Establish contacts with equivalent organizations outside of Europe.¹³⁸

In order to carry out these objectives, the ECC has created several working groups—as of December 2003, it had seven—that have established their own project teams in order to address specific issues.¹³⁹ While the agendas and activities of the different working groups clearly overlap, each group focuses on its own specific matters and issues miscellaneous decisions or draft decisions. The term “decision,” however, is actually a misnomer in this case,¹⁴⁰ since ECC decisions have no legal influence and are not binding on any member. The working groups also create Draft European Common Proposals (“ECPs”) on miscellaneous topics relevant to pan-European spectrum planning. Several of these working groups are described below.

The Frequency Management (“FM”) Working Group concentrates on frequency allocation matters. This group is the leading CEPT/ECC working group responsible for regulatory and technical preparations for ITU Regional Radiocommunications Conferences, particularly the Stockholm 61 Agreement.¹⁴¹ Its objectives are to harmonize frequency usage

138. See generally ERO, *ECC Mission Statement and Working Arrangements*, <http://www.ero.dk/4FCA7264-41C8-406A-A5FA-20E470818BE4.W5Doc> (accessed Mar. 31, 2005) (noting the work plan, terms of reference, and administrations of the ECC and discussing the role of the ECC and its structure).

139. See Spoelstra, *supra* n. 137, at 36-37. CRAF provides detailed documentation of the work of the ECC, and the information in the Handbook served as a basis for further research for the coverage in this section. *Id.*

140. See Rules of Procedure for the ECC, *Article 12.1*, [http://www.anfr.fr/doc/docenligne/ECC\(01\)05-ECC%20RoP.rtf](http://www.anfr.fr/doc/docenligne/ECC(01)05-ECC%20RoP.rtf) (defining a “decision” as the “outcome of any decision making process on matters of significant harmonisation in the electronic communications regulatory field”) (accessed May 25, 2005).

141. The *Stockholm 61 Agreement* covers various aspects of European broadcast TV spectrum allocation, standards, and regulation. It refers to the ITU Regional Radiocommunications Conference (“RRC”) planned for 2004 and 2005. *RRC, 04/05*. See EBU-UER,

in Europe wherever desirable and feasible and to develop common European positions on several matters.¹⁴² This forum allows European frequency managers (typically government NRA representatives) to discuss a wide range of problems of common interest, such as the use of frequencies resulting from the digital television switchover, as well as the accommodation of new radio systems in the radio spectrum.¹⁴³

The Radio Regulatory (“RR”) Working Group unsurprisingly (because of its name) is concerned with legal, regulatory, and administrative matters associated with the use of the radio spectrum. This group played a significant role in establishing the international regime necessary for the accommodation of pan-European mobile services, such as GSM.¹⁴⁴ It is responsible for harmonizing licensing regimes and for facilitating and studying economic and market surveillance matters.

The Spectrum Engineering (“SE”) Working Group concentrates on technical issues.¹⁴⁵ Its importance is increasing with the multiplicity of frequency-sharing arrangements, Short-Range Devices (“SRDs”),¹⁴⁶ and spread-spectrum technology, as well as with the complexity of other tech-

Guidelines for the RRC-04/05, http://www.ebu.ch/tech_texts/tech_text_i37-2003.pdf (accessed Nov. 29, 2003).

142. See ERO, *Terms of Reference for the FM Working Group (“ToR”)*, <http://www.ero.dk/22A8604D-B9A7-4D8F-BAC8-1AD6322B4DF7.W5Doc> (accessed Apr. 29, 2005). Specifically, ToR Point 14 covers the duties of the Stockholm 61 Working Group, which include the following: (1) Develop and agree on ECPs for the work of the Regional Radiocommunications Conference (RRC), (2) develop procedures to coordinate CEPT actions during the course of the RRC, and (3) prepare and approve briefs for the members of CEPT national delegations in order to present the European positions at the RRC.

143. See e.g., *Draft European Common Proposal, ECP 8, on Transition from Analogue to Digital Terrestrial Broadcasting* (Sept. 25, 2003); see also *Draft European Common Proposal, ECP 14, on Protection of Analogue and Digital Broadcasting in the Preparation of the Digital Plan* (Sept. 25, 2003) (available at <http://www.itu.int/md/meetingdoc.asp?type=sitems&lang=E&parent=D02-SG02-C-0227>). Both resolutions are related to ITU Resolution 1185 in connection with a coherent digital terrestrial broadcasting plan.

144. The ERC Decision of 24 October 1994 designated the frequency bands 890-915 MHz and 935-960 MHz for the introduction of the GSM system. *ERC Decision of 24 October 1994*, ERC/DEC/(94)01 (Oct. 24, 1994). According to this Decision, at least 2 x 9 MHz shall be reserved for the introduction of GSM within the designated frequency bands. See also *ERC Decision of 21 March 1997*, ERC/DEC/(97)02 (Mar. 21, 1997) (discussing *The Extended Frequency Bands to Be Used for the GSM Digital Pan-European Communications System*, which modifies the 1994 decision in certain respects).

145. See *Terms of Reference of the Working Group Spectrum Engineering and its Active Project Teams*, (Oct. 2003) (on file with author) (denoting the various working groups, contacts, and responsible managers for the topics under study).

146. See e.g., *ERC Recommendation 70-03* (Jan. 2005), which covers, *inter alia*, frequency bands and regulatory as well as informative parameters recommended for wide-band data transmission systems formerly known as Radio Local Area Networks (RLANs) within the band 2400-2483.5 MHz and known as High Performance Radio Local Area Networks (HIPERLANs) within the bands 5150-5350 MHz, 5470-5725 MHz, and 17.1-17.3 GHz.

nologies being used or planned for new radiocommunication systems, such as ultra-wideband ("UWB").¹⁴⁷ This working group also coordinates with ETSI on certain technical standards matters.¹⁴⁸

The ITU Working Group within the ECC coordinates CEPT actions related to the preparation and course of the following ITU activities: Meetings of the Council, Plenipotentiary Conferences, World Telecommunication Development Conferences, World Telecommunication Standardization Assemblies, and other meetings, as appropriate.¹⁴⁹ This working group develops ECPs for these ITU meetings and prepares relevant briefs for the members of CEPT national delegations in order to present the European position at these meetings.¹⁵⁰ Moreover, it consults with various bodies and organizations inside and outside the CEPT, as well as with NRAs outside the CEPT, with the principal aim of collecting information and broadening the support of CEPT positions.

The Conference Preparatory Group ("CPG") focuses on the preparation of ECPs for the WRCs and Radiocommunications Assemblies of the ITU.¹⁵¹ Its principal role is to prepare a set of ECPs for the relevant conference so that the CEPT can approach the conference with a united set of objectives, proposals, and beliefs.¹⁵²

In addition, Special Task Groups ("TGs") and Project Teams ("PTs") deal with specific issues, such as UMTS, as well as technical regulations and standards for interconnection. A Milestone Review Committee ("MRC") and General Milestone Review Committee ("GMR") facilitate the licensing process and distinguish among certain types of PCS systems (*e.g.*, "paper" S-PCS systems and "real" S-PCS systems).¹⁵³ GMR

147. See ERO SE24, *Study on the Compatibility Between Ultra Wide Band Services, Aviation Services, and Provisional Limits, Version 3.0* (Mar. 2002) (discussing the possible problems of ultra-wideband implementation and its effects on the aviation industry).

148. See ERO Website, Spectrum Engineering Working Group, <http://www.ero.dk/B927FC37-9B18-4FAD-BFF1-E9E7C8B3E6F3.W5Doc> (accessed Apr. 29, 2005).

149. See generally ERO, *Summary of ITU Radio Assembly Meeting June 2 - 6, 2003*, <http://www.ero.dk/520338AC-2399-4359-A9D2-CBA53C64E98F.W5Doc> (accessed May 25, 2005) (detailing various resolutions and reports arising from ECC and CEPT coordination efforts with the ITU in the 2003 ITU conference).

150. *Id.*

151. See *e.g.*, ERO, *Report on WRC-03*, <http://www.ero.dk/wrc-03> (July 29, 2003) (reporting on the proceedings at the ITU 2003 World Radiocommunication Conference in Geneva).

152. See ERO, *Terms of Reference for the Working Group "Conference Preparatory Group" (WG CPG)*, <http://www.ero.dk> (accessed Mar. 31, 2005) (including a ten-point list of consultative and preparatory objectives for the working group).

153. The ITU is concerned about the existence of "paper" satellites (*i.e.*, satellites that exist in a database or catalog but that have not been launched into space). Because of the limited spectrum available to the mobile satellite service ("MSS"), it was decided that the spectrum should be made available to those S-PCS systems that are likely to offer services within the CEPT region by 2001. Also, committees have developed procedures that are used to monitor and evaluate the progress of a satellite system toward the offering of ser-

procedures can be applied to all radio frequency bands, at least in principle.

Throughout its broad overall infrastructure, the ECC deals with an enormous variety of topics. All existing and potential uses of the radio spectrum are embraced by the Committee and its working groups as legitimate topics of discussion and analysis. Given the description in the foregoing section, at any given meeting, it would not be unusual for members to address such diverse topics as frequency allocation for radio amateurs, UMTS, UWB, or compatibility of new radar systems. This interdisciplinary nature of the working groups cannot be avoided. In fact, many working group members have responsibilities in other groups at the ITU or in their own governments, and some work as consultants in private industry.

3. *Frequency Tables and Recordkeeping*

Publication of records and tables of data is a central function of the ERO. One area where the ERO has been active is in numbering,¹⁵⁴ which involves the organization of public use telecommunications service numbers in terms of format and structure (groups of digits contain specific elements used for identification of services, geographic areas, networks, customers, and other relevant data). With regard to the radio spectrum, however, Europe has thus far lacked a comprehensive frequency table like the one produced by the U.S. government.¹⁵⁵ The ERO is officially charged with the task of creating such a table, and this work

vice over the CEPT in order to help eliminate the possibility of “paper” satellites within CEPT member countries. See *ERC Decision of 30 June 1997 on the Harmonised Use of Spectrum for Satellite Personal Communication Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz, and 2170-2200 MHz*, ERC/DEC(97)03 (June 30, 1997).

154. The European Telephony Numbering Space (“ETNS”) is a pan-European numbering system. For example, a new ETNS code—3883—can be used in the same way as a country code, allowing pan-European companies, organizations, and individuals to gain Europe-wide access to their services. While ETNS numbering is coordinated tangentially by the ERO, however, other numbering matters are also managed by parent CEPT, sister ETSI, and other standards-setting organizations and individual countries within the ITU. See Europa, *Background Paper on the Implementation of the European Telephony Numbering Space*, http://europa.eu.int/information_society/topics/telecoms/regulatory/publicconsult/etns_workshop/etns_background_paper_ws_v2.pdf (accessed Oct. 12, 2003) (citing the following directive as a legal basis for this numbering system: *Directive 2002/22/EC on universal service and users’ rights relating to electronic communications networks and services (the “Universal Service Directive”)*, OJ L 108, 24.4.2002 at 51).

155. See U.S. Department of Commerce, *United States Frequency Allocations: The Radio Spectrum*, <http://www.ntia.doc.gov/osmhome/allochrt.pdf> (accessed Feb. 28, 2004).

in progress is expected to be completed by 2008.¹⁵⁶ Furthermore, in January 2002 the ERO launched the ERO Frequency Information System ("EFIS"), which is a publicly searchable database that provides a major step forward in frequency tracking.¹⁵⁷ With this tool, the ERO aims to provide a valuable service to all parties interested in spectrum allocation and use. In addition, the EFIS database is a significant harmonization measure in line with the Decision of the Council and European Parliament on Radio Spectrum Policy, which requires governments to publish their allocation information.¹⁵⁸

EFIS's searchable online tool provides comparative spectrum metrics across Europe, as well as related information (e.g., information on CEPT activities), but the data it provides may not be entirely accurate, and companies hoping to deploy frequency-related services may not legally rely upon it.¹⁵⁹ So far, the tool is maintained on a voluntary basis by the individual countries through the framework of the CEPT (although the Radio Spectrum Decision discussed earlier, plans to make EFIS-like systems a legal requirement at some point in the future). However, EFIS marks a clear tendency in the direction of European harmonization. For example, various radio interface specifications are noted to be in compliance with the Radio and Telecommunications Terminal Equipment ("RTTE") Directive¹⁶⁰ and other national or international regulations.¹⁶¹ Further, a comprehensive table showing the use of frequencies on the European level—called the European Common Allo-

156. See ERC Report 25, *The European Table of Frequency Allocations and Utilisations Covering the Frequency Range 9 kHz to 275 GHz*, <http://www.ero.dk/documentation/docs/docfiles.asp?docid=1650> (accessed Mar. 31, 2005).

157. See ERO Frequency Information System, *General Search for Spectrum Utilisations*, <http://www.efis.dk> (accessed Dec. 2, 2003).

158. Decision No. 676/2002/EC of the European Parliament and of the Council in a Regulatory Framework for Radio Spectrum Policy in the European Community, http://europa.eu.int/information_society/policy/radio_spectrum/docs/poicy_outline/decision_6762002/en.pdf (accessed Apr 30, 2005) (At para. 15, to-wit: "[i]t is therefore necessary to complement existing Community and international requirements for publication of information on the use of radio spectrum.")

159. EFIS Users' Manual, available at http://www.efis.dk/documents/help/help_public.htm (accessed Apr. 30, 2005) (noting at para. 1 that "Although all is being done to ensure that the data contained in EFIS is valid and up-to-date, the ERO cannot be held responsible for any wrong information contained in EFIS. It should be clear that EFIS is an information tool and not a legally binding instrument").

160. See *Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999, on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity*, O.J. L 91/10 (Mar. 9, 1999).

161. See ERO, *Final Acts of the CEPT T-DAB Planning Meeting (4) Maastricht, 2002, Special Arrangement of the European Conference of Postal and Telecommunications Administrations (CEPT) relating to the use of the band 1452 - 1479.5 MHz for Terrestrial Digital Audio Broadcasting (T-DAB)*, <http://www.ero.dk/Maastricht-e> (accessed December 2, 2003). Also, for Digital Audio Broadcasting ("DAB"), see *id.* at <http://www.ero.dk/Wi-e>.

cation (“ECA”) table—has been published on the basis of the results of Detailed Spectrum Investigations (“DSI”s).¹⁶² Thus, the results of the DSI process are used in strategic planning efforts involving the spectrum, providing a means of anticipating the requirements of the various spectrum users. The DSI project has been a cooperative effort between the ERO, private industry, individual governments (particularly with respect to military uses),¹⁶³ users, and stakeholders (*e.g.*, industry, consumers, governments) of the radio spectrum.

The DSI process is made up of three phases:¹⁶⁴

1. DSI Phase I, covering the band 3400 MHz – 105 GHz, a plan developed in 1992-1993¹⁶⁵
2. DSI Phase II, covering the band 29.7 – 960 MHz, a plan developed in 1994-1995¹⁶⁶
3. DSI Phase III, covering the band 862 – 3400 MHz, a plan developed in 1998-2000¹⁶⁷

Additional ERO publication responsibilities in this area include the following: (1) support and collaborate with national frequency management authorities to ensure that frequencies are catalogued in a coherent and consistent fashion, (2) publish ECC Decisions and Recommendations and keep a record of the implementation of these decisions into law, (3) oversee the registrar service for the European Telephony Numbering Space, and (4) facilitate harmonization of certain radio devices in line with the RTTE Directive.¹⁶⁸ For example, the ERO regularly maintains a list of

162. See generally Electronic Communications Committee, *ECC Decision of 17 October 2003 on the Publication of National Tables of Frequency Allocations and Utilizations*, ECC/DEC/(03)05, <http://www.ero.dk/documentation/docs/doc98/official/Word/ECCDEC0305.DOC> (accessed Apr. 30 2005).

163. Military frequency requirements included in the table have been supported by the NATO Joint Civil/Military Frequency Agreement (“NJFA”) and by ongoing agreements within the civil/military cooperation in Europe. The “NATO Military Position for the World Radio Communication Conference 2000 (WRC-2000)” was approved by NATO’s Military Committee on March 24, 2000. It concluded two years of preparation in close cooperation with National Frequency Management authorities for WRC-2000, which was held from May 8, 2000, to June 2, 2000. NATO Update, *Week of 22 – 28 Mar. 2000*, <http://www.nato.int/docu/update/2000/0322/eng.htm> (accessed Apr. 30, 2005).

164. For a description of the full process as of early 2003, See ERC, *The European Table of Frequency Allocations and Utilisations Covering the Frequency Range 9 kHz to 275 GHz*, <http://www.ero.dk/eca-change> (describing the full process as of early 2003); see also ERO, *Final Report on the DSI Phase III*, <http://www.ero.dk/exec-sum> (accessed Apr 30, 2005).

165. See European Radiocommunications Office, *Results of the Detailed Spectrum Investigation, First Phase, 2400 MHz to 105 GHz 1* (1993).

166. See European Radiocommunications Office, *Results of the Detailed Spectrum Investigation Phase II Covering the Spectrum Between 29.7 and 960 MHz 1* (1995).

167. See European Radiocommunications Office, *Final Report on the Detailed Spectrum Investigation DSI Phase III 862-3400 MHz 1* (1998-2000).

168. Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual rec-

specific frequencies and devices that are only “partially harmonized” and of the countries that are not in compliance.¹⁶⁹ The RTTE Directive represents one of the earliest and most important areas of frequency harmonization, and the ERO’s “policing” role in this regard may be an indication of its ongoing role in the future. Therefore, where the European Union will decide upon policy, the ERO will provide technical recommendations for the implementation of that policy and act as an information clearing house for technical compliance of European Union law.

4. *One-Stop Shopping for Licenses—Satellite and Other Services*

As noted on the ERO Web site, the One-Stop-Shopping (“OSS”) procedure for certain licenses managed by ERO/ECC is “aimed at facilitating the provision of certain liberalized telecommunications services in a number of European countries.”¹⁷⁰ Principally, this procedure applies to satellite licenses, potentially one of the more promising aspects of spectrum centralization.^{171, 172} The Web site goes on to note the following:

The [OSS] Service Directive . . . provides for the liberalization of fixed telecommunications services other than voice telephony.¹⁷³ However, each individual country may subject the provision of these services to an individual licensing or a declaration procedure. Prior to the launch of the OSS, a service provider wishing to provide one of the liberalized telecommunications services in one or more of the CEPT countries had no option but to contact the NRAs of those countries to obtain the necessary information on the definition of the service, the licensing regime, the conditions of service provision, the constraints and limitations in-

ognition of their conformity, available at <http://www.rtte.org/documents/dir99-5.htm> (accessed Apr. 30, 2005).

169. See ERO, *Implementation of ERC 70-03*, <http://www.ero.dk/srd-impl> (accessed Apr. 30, 2005).

170. *Welcome to ERO*, *supra* n. 109; see also *ERC Decision of 29 November 1999 on the Establishment of a Regulatory Database of licensing regimes for telecommunication networks and services*, ERC/DEC/(99)22 (Nov. 29, 1999) available at <http://www.ero.dk/documentation/docs/docfiles.asp?docid=1575> (accessed Apr. 30, 2005) (specifying database and aggregation characteristics of the OSS for certain telecommunications services).

171. See ERC Recommendation (00)01 on the Establishment of a CEPT One-Stop-Shopping Procedure for Satellite Licenses and Authorisations, ERC/REC/(00)01 (May 30, 2000). <http://www.ero.dk/documentation/docs/docfiles.asp?docid=1580> (accessed Apr. 30 2005).

172. The implementation of OSS for satellite applications happened in mid 2001 for most CEPT countries. As of October 4, 2002, the following fourteen countries had accepted all satellite applications through the OSS procedure: Austria, Belgium, Denmark, Finland, Germany, Hungary, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland, and the United Kingdom. In addition, France and Monaco accepted most applications. *Source*: ERO OCC Implementation Status Spreadsheet (on file with the author).

173. *Commission Directive of 28 June 1990 on competition in the markets for telecommunications services*, 90/388/EEC (June 28, 1990) (known as the “Service Directive”).

volved in the provision of the given service, and so on.¹⁷⁴

The OSS procedure has the potential to simplify the licensing process for telecommunications services and reduce the number of contact points and official documents that a service provider must deal with and complete, respectively. As part of this *aggregation procedure*, the ERO does not itself grant licenses; instead, it offers a framework for centralizing the licensing application process. The ERO compiles the application materials and sends those materials to the NRAs, which as stated earlier, are the individual authorities of each country. Responses are also compiled within a single document that summarizes the results of the OSS procedure, and any licenses granted by the NRAs are attached to the document.¹⁷⁵ The ERO then sends the package back to the applicant. The entire process takes no more than nine weeks.

Reality has dimmed this once optimistic vision of one-stop shopping, however, since the OSS procedure has hardly been used since its implementation in 1999 (and it has thus far never been expanded for non-satellite applications).¹⁷⁶ As commentator Gerry Oberst notes, the procedure is inefficient since only a few countries use it:

Today, the heart of the problem and one reason the OSS is not perceived in better terms is that it is not used as frequently as the industry predicted, and the follow-up to it has not produced progress on the regulators' side. Partially, this reflects the fact that not all CEPT countries have implemented the OSS. Those countries presenting the most troublesome national bureaucracy typically are also the last ones to fully implement CEPT decisions which, unlike EU directives, are not legally binding. The countries that first implemented the OSS were typically those with the more efficient licensing structures. . . . Thus, the OSS has become the proverbial "chicken and egg," where companies do not use it as often as predicted because not enough countries have put it into place, which causes countries that have implemented it to say it is not worth the bother.¹⁷⁷

Although no public information is available on the number of applications processed by the OSS, an e-mail exchange with the ERO office indicates that only about ten applications have been filed. Although the ERO remains optimistic, it is unlikely that this OSS procedure has much of a future.¹⁷⁸

174. *Welcome to ERO, supra* n. 109.

175. *See ERO, OSS for Other Liberalised Services*, <http://www.ero.dk/oss> (accessed Apr. 30, 2005).

176. *See Gerry Oberst, Regulatory Review: Satellite Licensing - Under Threat*, <http://www.viasatellite.com> (Jan. 1, 2004).

177. *Id.*

178. *See* E-mail from Fabienne Abadie, ERO, to Patrick S. Ryan, "Inquiry from a Researcher," (Jan. 15, 2004) (copy on file with the author). As Abadie explains:

II. THE NEW FRAMEWORK

A. FIRST LIBERALIZATION, THEN HARMONIZATION

Not surprisingly, few would have characterized the European Union wireless market in the 1980s and in most of the 1990s as a "free market." As in the United States, the first European wireless licenses were granted by default to the incumbent operators. Unlike in the United States, however, the incumbent operators and the state maintained close relationships, leading to the protection of a somewhat unhealthy combination of public and private interests. To further complicate the matter, the companies' CEOs were governmental appointees, and their employees were civil servants who often could not be fired for any reason, even if such an action were warranted. The process of separating the telecom sector from government control has been an arduous one, and the topic tends to generate heated discussions even today. In fact, it is only in the past couple of years that the member states' telecommunications regulatory bodies have reorganized in an attempt to provide greater separation between the government and the private sector. For example, the French telecommunications regulatory authority, ART (*l'Autorité de Régulation des Télécommunications*), was created only in 1997.¹⁷⁹ On the other hand, in the UK the government set up its Federal Office for Communications as early as 1984. That said, the resulting twenty-one regulatory bodies that have since emerged in the UK audiovisual sector represent an impressive bureaucracy. Accordingly, a broad reform process was undertaken to reduce and combine many of the bodies to form a single Office of Communications.¹⁸⁰ Although the process will take some time to complete,¹⁸¹ the new office has been formed, and it is has been

The OSS was launched in October 2000 and since then about 10 applications have been filed via the system. Most applications concerned authorisations for SNG [Satellite News Gathering], in one country. Other applications were for VSAT [Very Small Aperture Terminal] authorisations. . . . Although the modest number of applications filed and the fact that these did not concern applications in several countries simultaneously may look like a poor result, operators often mentioned that the efforts carried out for setting up the OSS had not been in vain. It made the licensing situation more transparent and highlighted the heavy requirements that some countries have imposed on satellite applicants, encouraging lighter regulation and further harmonisation.

Id.

179. ART, *L'Autorite De Regulation Des Telecommunications*, <http://www.art-telecom.fr> (accessed Mar. 31, 2005).

180. Higgam, Fitzpatrick, & Calow, *The Future of United Kingdom Content Regulation: A Round Peg in a Rectangular Box or Something Old, Something New, Something Borrowed, Something Blue*, 8 *Computer and Telecomm. L. Rev.* 220 (2001).

181. Communications White Paper, *A New Future For Communications*, <http://www.communicationswhitepaper.gov.uk/> (accessed Mar. 31, 2005) (providing the Draft Communications Bill, White Paper, and other materials).

operational since December 2003.¹⁸²

An overview of relevant telecommunications-related legislation—old and new—is provided in the Appendix. The European Union liberalization process in telecommunications began in earnest with the passage of the 1988 Terminal Equipment Directive.¹⁸³ The Directive targeted telecommunications markets in general, and it initially had little direct impact on the wireless sector except for the obvious categorization of GSM and cordless phones¹⁸⁴ as “terminal equipment.” Although the process has been painful at times, many argue that out of the molasses-slow liberalization process a wireless market has emerged in the European Union (1) that is more standardized¹⁸⁵ and consumer friendly than the U.S. market and (2) that has made much more spectrum available than is available in the U.S. market.¹⁸⁶ This latter point merits reemphasis: In the European Union, more than fifty percent more spectrum is available (*i.e.*, licensed for mobile applications) than in the United States.¹⁸⁷

Arguably, the most revolutionary legislation in the European Union was the 1990 Services Directive.¹⁸⁸ Although this directive categorically exempted nearly all important wireless services,¹⁸⁹ the member states were nonetheless required to separate the operational entities from their governments since the interconnection between the two was deemed incompatible with the policies of market integration and an abuse of a

182. See Ofcom, *Welcome to Ofcom*, <http://www.ofcom.org.uk> (accessed Mar. 31, 2005).

183. *Commission Directive 88/301/EEC of May 16, 1988, on competition in the markets in telecommunications terminal equipment*, OJ L 131 (May 16, 1988).

184. “Cordless” here means telephones operating in the unlicensed spectrum bands connected at home or in an office directly to a fixed line.

185. GSM was a tremendously successful all-European standard that led to the transparency of networks for intra-community calling, SMS messaging, and “caller pays” services. In contrast, four different wireless standards emerged in the United States, with the disadvantage that many networks and user devices (mobile phones) were not compatible. SIM cards, for example, practically do not exist in the U.S. system, and SMS messaging did not work across networks until very recently (both of these facts tend to shock Europeans). See The Economist, *The Global Mobile*, http://www.economist.com/surveys/displayStory.cfm?Story_id=246191 (Oct. 7, 1999).

186. See generally Patrick S. Ryan, *Wireless Spectrum Allocation and New Technologies: Reviewing Old and New Paradigms Through a Case Study of the U.S. Ultra Wideband Proceeding* (January 10, 2003). German Working Papers in Law and Economics Working Paper No. 8. <http://ssrn.com/abstract=472321>.

187. In the United States, only 189.1 megahertz of spectrum is available. In contrast, 305 megahertz is available in Germany, and 346 megahertz is available in England. See Yochi Dreazen *Space Wars*, *Wall Street Journal* R9 (Sept. 23, 2002).

188. *Council Directive 90/388/EEC of June 28, 1990, on competition in the markets for telecommunications services*, OJ L 192 (June 28, 1990).

189. *Id.* at Article 1 (2), to wit: “This Directive shall not apply to telex, mobile radiotelephony, paging and satellite services.”

dominant position per Articles 82 and 86 of the Treaty of Rome.¹⁹⁰ Wireless services were also brought within the Directive's purview with the passage of an amendment in 1994 for satellite services¹⁹¹ and another amendment in 1996 for mobile services.¹⁹² Specifically, the Directive mandated the "withdrawal of all special or exclusive rights for the supply of telecommunications services,"¹⁹³ and it required that licenses be granted under conditions that are "objective, non-discriminatory and transparent, that reasons are given for any refusal, and that there is a procedure for appealing against any such refusal."¹⁹⁴ The transparency principle permeates various aspects of the new regulatory framework, as will be discussed below.

Numerous pieces of European Union legislation are aimed at further liberalizing, harmonizing, and simplifying regulations in the telecommunications sector. Some of the most important directives and decisions were passed within the last few months and will be discussed here. These directives and decisions are said to be "evolutionary" rather than "revolutionary,"¹⁹⁵ and as an underlying objective they seek to "base the application of ex ante sector specific regulation on [market] competition law."¹⁹⁶ The new framework simplifies measures at the European Union level by reducing the total amount of legislation from around twenty to eight.¹⁹⁷ The new directives and their progeny are detailed below, but note that only a discussion of the salient aspects related to wireless communications is within the scope of this article. An overview table that shows the directives that are being replaced under the new framework is included in the Appendix.

190. *Id.* at Recitals 12-17 (referring to the previous numbering, Articles 91 and 86, respectively).

191. *Commission Directive 94/46/EC of 13 October 1994 amending Directive 88/301/EEC and Directive 90/388/EEC in particular with regard to satellite communications*, OJ L 268 (Oct. 13, 1994).

192. *Commission Directive 96/2/EC of 16 January 1996 amending Directive 90/388/EEC with regard to the implementation of full competition in telecommunications market*, OJ L 74 (Jan. 16, 1996).

193. 90/388/EEC at Article 2 (1).

194. *Id.*

195. Christian Hocepied, Presentation, *The New EU Regulatory Framework for Electronic Communications: From Sector Specific Regulation to Competition Law* (Washington D.C., May 20-21, 2002).

196. *Id.*

197. See Michael H. Ryan & Reinhard Schu, *An Introduction to the New EU Regulatory Framework For Electronic Communications*, <http://www.aporter.pair.com/articles/new-framework.pdf> (Sept. 2002).

B. THE FRAMEWORK DIRECTIVE

The Framework Directive¹⁹⁸ was arguably the keystone directive in the harmonization procedure. With respect to wireless communications, Article 9 of the Directive requires the member states to “ensure that the allocation and assignment of such radio frequencies by national regulatory authorities are based on *objective, transparent, non-discriminatory and proportionate* criteria.”¹⁹⁹ However, the Directive does not take a position as to *how* governments should apportion the spectrum (*e.g.*, comparative hearings or auctions). While the Commission has undertaken numerous studies to review the best way to administer the spectrum and to reallocate it in the future,^{200, 201} at this time no concrete action has been taken either at the member state level or the Community level. It is also important to note that the Framework Directive (like many of its regulatory siblings from the same package) incorporates the Radio Spectrum Decision into it by reference in both the main text and the recitals, as described in greater detail below.²⁰² Although there were some initial complaints, the implementation is going well.²⁰³

198. *Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services*, OJ L 108 (24 Apr. 2002).

199. *Id.* at Article 9(1) [emphasis added].

200. See BIPE Consulting, *Digital Switchover in Broadcasting*, http://europa.eu.int/information_society/topics/telecoms/regulatory/studies/documents/final_report_120402.pdf (Apr. 12, 2002).

201. Though no concrete action has been taken either at the member state level or the Community level, the UK has adopted the most forward-thinking position on spectrum trading at this stage. See Martin Cave, *UK Radio Spectrum Management Review*, and many other consultant reports and industry comments, <http://www.spectrumreview.radio.gov.uk>.

202. *Directive 2002/21/EC*, OJ L 108 at Article 9(2) (requiring harmonization of the use of radio frequencies in accordance with the Spectrum Decision); Article 9(4) (ensuring that competition is not distorted and requiring that harmonization, as implemented by the Spectrum Decision, does not result in the change of use of a given frequency). For a recital reference, see Recital 19 (noting that one of the objectives of the Framework Directive is to “facilitate the work under [the Spectrum] Decision”).

203. See Sylvia Alonso Salterain, *Review of the European Telecommunications Legal Framework – Article 6 of the Framework Directive, a Violation of the Institutional Balance Set Forth by the E.U. Treaty*, 2002 C.T.L.R. I, at 1. Salterain decried the loss of sovereignty to the European Union. *Id.* As an official of the Spanish regulatory body, she opined in a sweeping argument that the consultation and transparency mechanism of Article 6 “constitutes an imbalance in the institutional arrangements set forth by the European Union Treaty; . . . [and] goes beyond the scope of what any transparency mechanism would permit.” *Id.* Thus, Salterain has suggested that European Union involvement is becoming expansive and should be restrained, a point of view that is representative of the type of resistance that the European Union faced when it tried to break up the PTTs. *Id.* Positions like Salterain’s are likely to be mirrored by governments that have maintained their own interpretation of “transparency” and that are resistant to coming under the scope of competition law. As it turns out, governments like those of Spain and France have not

C. THE AUTHORIZATION DIRECTIVE

The Authorization Directive²⁰⁴ is relevant to the regulatory authorization of “all forms of electronic communications networks and services,”²⁰⁵ most specifically to their regulatory authorization (hence the name). The Directive prohibits limitations on the number of new entrants in the telecommunications market,²⁰⁶ except, with respect to the radio spectrum, *to the extent required to ensure an efficient use of radio frequencies*.²⁰⁷ Such restrictions, however, are left to the member states to manage, subject of course to overlay EU competition laws and doctrine.

D. THE ACCESS DIRECTIVE

The Access Directive²⁰⁸ has numerous implications for wireless services. First, the term “access” is carefully defined so that it includes the availability of the infrastructure used for the installation of wireless facilities (e.g., attachment to buildings, ducts, and masts).²⁰⁹ Second, the Directive requires the competent authorities in the relevant member states to promote laws and impose obligations to allow access to the infrastructure for broadcasting, particularly in the scope of the digital transition of radio and television.²¹⁰ Finally, the Directive authorizes member states to enact transparency legislation that may require the disclosure of technical information regarding network characteristics, the provision of non-discriminatory access to others, and government intervention in order to control costs.²¹¹

been entirely transparent in their wireless licensing procedures, and they have reason to fear that further inspection into their practices may reveal favoritism. This is particularly the case for Wireless Local Loop (WLL) and 3G licenses, where less-transparent “beauty contests” were chosen over auctions.

204. *Directive 2002/20/EC of the European Parliament and of the Council of March 7, 2002, on the authorization of electronic communications networks and services*, OJ L 108 (Apr. 24, 2002).

205. *Id.* at Article 1 (1) [emphasis added].

206. *Id.* at Article 3. For a related discussion, see *Id.* at Recital 7 (stating that “[t]he least onerous authorization system possible should be used to allow the provision of electronic communications networks and services in order to stimulate the development of new electronic communications services and pan-European communications networks and services and to allow service providers and consumers to benefit from the economies of scale of the single market”).

207. *Directive 2002/20/EC*, OJ L 108 at Article 6, which incorporates by reference Annex B (“Conditions which may be attached to rights of use for radio frequencies”).

208. *Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002, on access to, and interconnection of, electronic communications networks and associated facilities*, OJ L 108 (Apr. 24, 2002).

209. *Id.* at Article 2(a).

210. *Id.* at Article 5 (1) (b).

211. *Id.* at Articles 9 – 13.

E. THE UNIVERSAL SERVICE DIRECTIVE

The Universal Service Directive²¹² is a complicated directive that attempts to harmonize the concept of “universal service” within the European Community, while at the same time providing certain consumer protection measures. We will only review a few relevant portions of the Directive that (tangentially) relate to wireless providers. Although the Directive does not define “universal service” in black-and-white terms, it does note the importance of creating a universal access number (“112”) for emergency services,²¹³ and it remarks upon past successes involving European “universal service,” such as the addition of the numbers “00” community-wide for international calling.²¹⁴ These aspects are thus imposed on GSM and UMTS providers. The Directive carries wide exceptions to allow the member states to adopt independent measures in accordance with Articles 30 and 46 of the Directive, which address public security, public policy, and public morality.²¹⁵ As we have stated, little of the Directive’s content directly applies to wireless communications (as opposed to communications and consumer interests in general), although Recital 8 includes a sweeping statement that *all forms of communication* are to be included within its scope:

A fundamental requirement of universal service is to provide users on request with a connection to the public telephone network at a fixed location, at an affordable price There should be no constraints on the technical means by which the connection is provided, *allowing for wired or wireless technologies*, nor any constraints on which operators provide part or all of universal service obligations.²¹⁶

As a practical matter, however, the Universal Service Directive is not a major consideration for wireless providers. Wireless companies are confronted with universal service policies in their license bids, and although there is little empirical data to support this comment: one might surmise that governments accepts the bids while hoping to contractually obligate the licensee to fulfill the requirements. Most auctions have coverage requirements, and all comparative hearings (also known as “beauty contests”) are associated with objective coverage criteria that seek to provide a maximum footprint for the delivery of services to the population.

212. *Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002, on universal service and users’ rights relating to electronic communications networks and services*, OJ L 108 (Apr. 24, 2002).

213. *Id.* at Recital 13.

214. *Id.* at Recital 37.

215. *Id.* at Articles 30 and 46.

216. *Id.* at Recital 8 [emphasis added].

F. THE RADIO SPECTRUM DECISION

The Radio Spectrum Decision²¹⁷ attempts to link European Union spectrum demands to its policy initiatives through the creation of two new entities: (1) the Radio Spectrum Committee and (2) the RSPG.²¹⁸ These entities are described below.

1. *The Radio Spectrum Committee*

The Radio Spectrum Committee, launched in July 2002,²¹⁹ will assist and advise the Commission on radio spectrum policy issues, on the coordination of policy approaches (advisory procedures), and, where appropriate, on harmonizing conditions and legislative measures (regulatory procedures) with regard to the availability and efficient use of the radio spectrum necessary for the establishment and functioning of the common market. The advisory procedure of the Committee will provide feedback to the Commission, which, in turn, *shall issue mandates to the CEPT*²²⁰ for implementation.²²¹ Finally, one relatively concrete aspect of the Radio Spectrum Decision is its requirement that member states regularly publish their radio frequency allocation tables (a transparency measure), thus making them available to the public.²²²

2. *The Radio Spectrum Policy Group*

The purpose of the RSPG is to *adopt opinions* in order to assist and *advise the Commission* on radio spectrum policy issues, on the coordination of policy approaches, and, where appropriate, on *harmonized conditions* with regard to the availability and efficient use of the radio spectrum necessary for the establishment and functioning of the internal market. The members of the RSPG are representatives of the member

217. *Decision No. 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community*, OJ L 108 (Apr. 24, 2002).

218. *Id.* at Articles 3 and 4.

219. See Commission Press Release, *Commission Creates Radio Spectrum Policy Group and European Regulators Group*, IP/02/1171 (Jul. 29, 2002) (specifying the creation of the Radio Spectrum Policy Group and a European regulators group).

220. Membership in CEPT, which is based in Denmark, extends well beyond the EC (CEPT has forty-four members). See European Conference of Postal and Telecommunications Administrations, *Welcome to the CEPT Website*, <http://www.cept.org> (accessed Mar. 31, 2005).

221. See Europa - Information Society, *Policies: Radio Spectrum*, http://europa.eu.int/information_society/policy/radio_spectrum/current/index_en.htm (accessed Apr 30 2005) (noting that "Pursuant to Article 4 of the Radio Spectrum Decision, the Commission may issue mandates to the CEPT for the development of technical implementing measures with a view to ensuring harmonised conditions for the availability and efficient use of radio spectrum; such mandates shall set the task to be performed and the timetable therefore").

222. See Radio Spectrum Decision at Article 5.

states and of the Commission. Representatives, the candidate countries, the European Parliament, the CEPT, and ETSI attend RSPG meetings as observers. The RSPG is expected to provide extensive consultation in a forward-looking manner on technological, market, and regulatory developments relating to the use of the radio spectrum in the context of European Union policies on electronic communications, transport, and research and development. Such consultation should involve all relevant radio spectrum users, both commercial and non-commercial, as well as any other interested party.

3. *Activities of the Radio Spectrum Committee and the Radio Spectrum Policy Group*

The Radio Spectrum Committee and the RSPG are relatively new and are only now beginning to take shape. The RSPG's dedicated Web site, for example, has only been active for a little over a year.²²³ As of March 2004, a dedicated Web site for the Radio Spectrum Committee is not yet available, although the Committee has begun to issue some mandates to the CEPT.²²⁴ The RSPG held a meeting on spectrum trading in December 2003, and it also held some meetings regarding the switchover to digital broadcasting in February 2004. Both the Radio Spectrum Committee and the RSPG employ only a handful of staff, and the degree of progress made by these groups will have to be watched closely in the coming months.

G. THE PATH TOWARDS COMPETITION REGULATION

Jean-François Pons²²⁵ and Christian Hocepiéd²²⁶ of the Competition Directorate have championed the new framework as a major step towards the elimination of sector-specific regulation and as a shift towards general competition law principles. Pons described this noteworthy change in policy by stating that the Commission will "only regulate where [it does] not believe competition remedies will be sufficient to rem-

223. See RSPG, *Radio Spectrum Policy Group Web Site*, <http://rspg.groups.eu.int/> (accessed Mar. 18, 2004).

224. Europa, *Mandate to CEPT to Harmonize Radio Spectrum Use for Ultra-Wideband Systems in the European Union*, http://europa.eu.int/information_society/topics/radio_spectrum/docs/pdf/madates/mandate_uwb.pdf (accessed Mar. 31, 2005) (setting April 2005 as the deadline to provide a final report to the Commission).

225. Deputy Director General, Competition Directorate General, European Commission, Brussels.

226. Head of Section, Telecommunications and Post Unit, Competition Directorate General, European Commission, Brussels.

edy persistent market failures.”²²⁷ One of the most significant features of this position is the European Commission’s publication of new guidelines for market analysis and for the assessment of significant market power (“SMP”).²²⁸

Nonetheless, the concept of “dominance” (and the thirty years of jurisprudence that defines dominance)²²⁹ will ultimately replace the SMP concept.²³⁰ In addition, new guidelines have gone through a long process to clarify matters for sectors that are susceptible to ex ante regulation per Article 15(2) of the Framework Directive,²³¹ and these guidelines will be used by the NRAs in analyzing their relevant markets. The consultation procedure has been completed, a working document details initial findings,²³² and comments were analyzed by the Commission, resulting in a definitive guidelines document²³³ and a Commission Recommendation.²³⁴ In this context, it is noteworthy (particularly for the purposes of this article, which is based on wireless technology) that the Commission has made clear distinctions between the provision and treatment of fixed versus mobile applications.²³⁵

227. Jean-François Pons, Speech, *Overview of Major Developments in European Competition Policy Affecting the Communications Industry* 6 (Washington D.C., May 20-21, 2002) (available at http://europa.eu.int/comm/competition/speeches/text/sp2002_018_en.pdf).

228. See, e.g., Europa, *Commission Issues Market Power Assessment Guidelines for Electronic Communications*, http://europa.eu.int/comm/competition/liberalization/others/i02_1016_en.pdf (accessed Jan. 1, 2004) (discussing the adoption and release of guidelines for the assessment of SMP).

229. See generally *Continental Can*, Case 6/72; *United Brands*, Case 27/76.

230. *Id.* Under current (pre-new framework) conditions, an operation would be presumed to be dominant if it possesses a market share of twenty-five percent or greater. Under the new framework, market share will be only one consideration. Other single or joint dominance considerations will include (1) the overall size of the undertaking, (2) the control of “essential facility”-type infrastructures, (3) technological advantages, (4) undue relative buying power, (5) vertical integration, and (6) the absence of potential competition.

231. *Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002* (Mar. 7, 2002).

232. Europa, *Working Document, On Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services*, <http://europa.eu.int> (accessed Mar. 31, 2005).

233. *Commission Guidelines on Market Analysis and the Assessment of Significant Market Power under the Community Regulatory Framework for Electronic Communications Networks and Services*, O.J. C 165/6 (July 11, 2002).

234. *Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services*, O.J. L 114/45, 2003/311/EC (May 8, 2003).

235. *Id.* at 8 (generally); *id.* at Section 4.2.1 (for fixed services as distinguished from mobile); *id.* at 21 (generally); *id.* at Section 4.3 (for services provided at non-fixed locations).

III. CONCLUSION

Europe is unique in many ways. Indeed, one of the more distinctive characteristics of the European Union framework is the way in which its institutions are geographically separated from each other, oftentimes by hundreds of kilometers. Not only is distance a factor, but so too are culture and language.²³⁶ Telecommunications, therefore, plays a practical role in European Union policymaking itself. As a result, European law-making institutions, though scattered throughout the Continent, have managed to succeed in spite of this distance. For example, the Executive Body, the European Commission, is based in the heart of Europe in Brussels, Belgium. However, the European Court of Justice, located in Luxembourg, is 212 kilometers away from Brussels;²³⁷ the European Parliament and European Court of Human Rights, based in Strasbourg, France, are 430 kilometers away; and the European Central Bank, operating out of Frankfurt am Main, Germany, is 398 kilometers away. Centralized "interfaces" with private industry (*e.g.*, ETSI and CENELEC), likewise, have been divided throughout the Community. Furthermore, this distributed approach penetrates all aspects of the European policymaking structure. For example, the European Patent Office is based in Munich, Germany, and the European Trademark Office is based in Alicante, Spain. Thus, a strong communications framework is not only a matter of importance to the public, but it is also critical to the European Union's ability to function smoothly as an economic community.

We have seen that the European Union has broken up the PTT structure and has embraced open markets in telecommunications, a process that has taken root only within the past ten years. Thus, telecommunications management throughout the European Union has changed from a process of coordination among government telecommunication ministries to a more complicated consensus-building procedure among private industries. However, as we have seen with the development of various technology promotion programs like RACE (and its progeny), a heavy public-private partnership in the development of new technologies continues.

236. The official languages and the working languages of the institutions of the European Union are Danish, Dutch, English, Finnish, French, German, Greek, Italian, Portuguese, Spanish, and Swedish. *See also* Article 314 of the EC Treaty, which lays down the principle of multilingualism. Article 21 states that every citizen of the Union may write to any of the institutions or bodies in one of the languages mentioned in Article 314 and receive an answer in the same language. Finally, Council Regulation No. 1 of 15 April 1958 determined the languages to be used by the EEC, as amended after each enlargement (thus, the number of languages increased further to accommodate the ten new accession countries in May 2004).

237. All distances in this section were obtained by using MapQuest. Mapquest.com, Inc., *Mapquest*, <http://www.mapquest.com> (accessed Nov. 14, 2003).

How does this complex debate relate to spectrum management? To date, the answer to this question is unknown. The European Union opened its own spectrum management office (the Radio Spectrum Committee and the RSPG) only a few months ago, and the future of this organization, which is still in its infancy, and the eventual role it will play within the individual sovereign states are as yet uncertain. At this point, the organization is undertaking a couple of limited studies. However, some trends are already clear, such as trends toward the continued privatization of telecommunications and the transfer of responsibility from the public to the private realm. However, the individual member states' willingness to concede spectrum responsibility to the emerging European structure is, at this point, doubtful.

**APPENDIX: SIMPLIFICATION OF TELECOMMUNICATIONS
LEGISLATION UNDER THE NEW FRAMEWORK**

The following table shows the new framework legislation that has replaced some of the old telecommunications legislation.

Present Directives	New Directives ("New Framework") That Replace Old Directives
<i>Liberalization</i>	
Services Directive (90/388/EEC)	
Satellite (94/46/EC)	
Cable (95/51/EC)	⇒ Liberalization Directive
Mobile (96/2/EC)	(2002/77/EC)
Full Competition (96/19/EC)	
Cable Ownership (99/64/EC)	
<i>Liberalization and Harmonization</i>	
ONP Framework Directive (90/387/EEC) (amended by 97/51/EC)	Framework Directive (2002/21/EC)
Licensing Directive (97/13/EC)	
GSM Directive (87/372/EEC)	Authorization Directive
ERMES Directive (90/544/EC)	(2002/21/EC)
DECT Directive (91/287/EEC)	
S-PCS Decision (97/710/EC)	Access and Interconnection
UMTS Decision (99/128/EC)	Directive (2002/20/EC)
European Emergency Number Decision (91/396/EC)	
International Access Code Decision (92/264/EEC)	Unbundled Local Loop Regulation (2000/2887)
ONP Leased Lines Directive (92/44/EEC) (amended by 97/264/EC)	⇒ Universal Service and User's Rights Directive (2002/22/EC)
TV Standards Directive (95/47/EC)	
Interconnection Directive (97/33/EC) (amended by 98/61/EC)	Data Protection Directive (2002/58/EC)
Voice Telephony Directive (98/10/EC)	
Telecoms Data Protection Directive (97/66/EC)	Radio Spectrum Decision (676/2002/EC)

