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Jessica Finley*

I. INTRODUCTION

Regulation of telecommunications is at a crossroads. The United States has utilized the Federal Communications Commission ("FCC") to regulate telecommunications almost since the inception of the technology. However, the roadmap and principles upon which the FCC operates have not evolved with changes in technology. Regulation of telephone, broadcast communication, and wired communications, such as the internet and cable television, are still segregated and do not account for overlap among the various telecommunication modalities.

Conversely, telecommunications regulation in the European Community has been governed by a variety of sources, including the Member States and European Commission. The European Commission, however, has only periodically reviewed the needs of Member States in light of the telecommunications industry and has issued directives that considered the impact of changing technology. As early as 1987, the European Commission recognized the changing market structure of the telecommunications industry and the need to respond and regulate according to this structure. By 1997, the European Commission was

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1 THOMAS G. KRATTENMAKER & LUCAS A. POWE, JR., REGULATING BROADCAST PROGRAMMING 31 (1994).


3 Id.


5 Id. at 34.

6 Towards a Dynamic European Economy: Green Paper on the Development of the
focusing on the actual changes in technology and possible responses in the regulatory structure. In 2002, the European Commission issued a Framework Directive aimed at changing the entire approach to telecommunications regulation and sought to prevent the problem of regulating developing technologies by re-conceiving the regulated technologies as “electronic communications” rather than identifying discrete and already existing technologies.

This paper argues that the United States should look to the European Community in order to rework its telecommunications regulatory structure. More specifically, the United States should reconsider its current system of regulating various telecommunications sectors separately and follow the European Commission by developing a “single regulatory framework.” By regulating the telecommunications transmission separately from telecommunications content, the United States can better anticipate emerging technologies rather than struggling to catch up with new technologies as they exceed the reach of the current regulatory framework. Part II will discuss the U.S. and European telecommunications regulatory frameworks. Part III will discuss the advantages of a switch to a more consolidated framework.

The FCC’s goals of promoting the public interest, creating convenience, and the necessity for telecommunications access and regulation are similar to the broad goals of the European Community Objectives. By following Europe’s lead by first, regulating content and transmission separately, and second, regulating “electronic communications” rather than specific, existing technologies, the FCC will be more able to adjust to new technologies, address overlap of existing technologies, and answer questions about market forces and consumer access in the increased bundling of various telecommunications services.


9 Id. at 3.

II. BACKGROUND: UNITED STATES TELECOMMUNICATIONS REGULATION

A. Telecommunications Regulations Prior to the FCC

The FCC acts as the regulatory and licensing body for telecommunications transmissions and content. The current incarnation of the FCC evolved from early policies regarding the use of the radio spectrum. Following the proliferation of broadcast facilities in the early twentieth century, the government initiated regulation of radio communication with the Radio Act of 1912. The statute set aside a bandwidth range (but not specific frequencies) for broadcast transmissions and required that radio operators obtain a license from the Secretary of Commerce and Labor. Improving technology and increased use of then radio led to the development of commercial broadcast stations in the early 1920s, which was accompanied by the need for designated broadcast channels due to interference among competing stations. The Secretary of Commerce initially designated two channels for broadcast frequencies, and eventually expanded the available frequencies to a designated range of the spectrum. As demand for broadcast channels exceeded supply, the Secretary of Commerce attempted to reduce interference by limiting hours and sharing frequencies between stations. However, the Courts soon ruled that the Secretary of Commerce had power only to issue licenses and not to regulate station activity. This created a situation of uncontrolled, overlapping broadcasts and “chaos” that spurred the government to intervene.

Congress passed the Radio Act of 1927 (“1927 Act”) as a response to the “chaotic,” uncontrolled radio traffic. The 1927 Act created the Federal Radio Commission, an administrative agency charged with both licensing and regulating broadcasters. Significantly, the 1927 Act declared that the government alone owned the airwaves. The government created a regulatory commission based on the assumption that the broadcast spectrum was a scarce and valuable resource. This resource could not be accessible to everyone who desired it because the result would be the same “chaos”

11 KRATTENMAKER & POWE, supra note 1, at 31.
12 Id. at 5–7.
13 Id.
15 Id.
17 KRATTENMAKER & POWE, supra note 1, at 9.
18 Id. at 12.
19 Id.
that had occurred prior to the 1927 Act. Due to limited access, broadcasters acted as proxies for the people. On this basis, the government regulated the broadcasters’ access by allocating revocable, limited term licenses for the “public interest, convenience, or necessity.” Using virtually identical language, the Communications Act of 1934 (“1934 Act”) re-designated the Federal Radio Commission as the FCC.

B. FCC Regulatory Structure

The 1934 Act consisted of six titles which set the stage for the regulatory structure which continues to regulate the various telecommunications modalities under independent schemes. Title II of the 1934 Act focused on so-called “common carriers,” referring to telephone and telegraph services, while Title III focused on broadcast media. Congress later added Title VI regulating cable television under the Cable Communications Policy Act.

1. Title II Common Carriers

Common carrier legislation and regulation were initially intended to cover wired telecommunications services. Telephone and telegraph communications were perceived as a “natural monopoly” early in the twentieth century. Because of the prohibitive cost of building a wired telephone or telegraph network combined with the desire to provide “universal service” to consumers, the government’s original legislative and regulatory approach was to foster and protect AT&T’s monopoly in telephone wires, switches, and services. One of the first steps toward creating this monopoly was the Willis-Graham Act, which allowed telephone companies to merge by exempting them from antitrust laws.

Merging all telephone companies into a single system allowed AT&T to provide multiple services that were not necessarily independently

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20 BRUCE M. OWEN, ECONOMICS AND FREEDOM OF EXPRESSION 103 (1975).
21 42 Stat. 1162 (1927).
24 Id.
25 Id.
26 THOMAS G. KRATTENMAKER, TELECOMMUNICATIONS LAW AND POLICY 341 (2d ed. 1998).
27 Id. at 344–45.
28 Id. at 348.
profitable by creating "cross-subsidies." By charging rates that would allow the company to make an overall profit, AT&T could provide services that furthered the FCC’s "public interest" mindset, but that were less cost-effective or that would have been cost-prohibitive for competitors.

Generally, more profitable long distance services offset the prohibitive cost of providing service to rural areas and lightly used long distance call routes.

Due to two types of advances in technology, common carrier regulation began to shift away from the natural monopoly model after World War II. First, less expensive microwave and satellite data transmission technologies reduced the need for a monopolistic system of long distance wires. Second, due to the advent of digital signal processing and fiber optic wire, more data could be moved through wires. Present day common carrier regulation focuses on maintaining "universal service," in the colloquial sense, while working under the constraints of a competitive rather than monopolistic market. Common carriers must strive to provide universal service to customers while taking into account the costs and benefits of extending services to small, remote populations in order to maintain a competitive edge.

2. Title III Broadcast Media

Title III of the 1934 Act aimed to regulate the broadcast media. However, instead of encouraging a monopoly to form as it did for common carriers, broadcast media regulation focused primarily on the allocation of what the government perceived as a scarce resource among those companies best suited to use it. Title III allowed the FCC to regulate the developing broadcast television industry on the same premise that it had the radio industry. The Supreme Court approved the FCC’s administrative powers designated by Congress and approved FCC regulation of the broadcast industry. The government continued to assert ownership of the broadcast spectrum and allocated licenses on the basis of its "public interest" philosophy.

The FCC managed competition for broadcast licenses by holding

31 KRATTENMAKER, supra note 26, at 349.
32 Id. at 349–50.
33 See, e.g., id.; Mueller, supra note 30, at 657.
34 Mueller, supra note 30, at 657–58.
35 KRATTENMAKER, supra note 26, at 347.
36 Id.
37 Mueller, supra note 30, at 658.
38 KRATTENMAKER & Powe, supra note 1, at 34.
40 KRATTENMAKER & Powe, supra note 1, at 34.
hearings to determine which applicant would best serve this "public interest." 41 The FCC believed that locally controlled television and radio stations provided the best means to meet the "public interest" standard. 42 In furtherance of this standard, the FCC distributed licenses and broadcast channels to minimize interference between stations and to promote local participation in the broadcast industry.

The FCC feared that larger markets would dominate the broadcast market and take up all available bandwidths, effectively squeezing smaller and more rural communities out of broadcasting. 43 Using 47 U.S.C. § 307(b), which requires that the Commission distribute "licenses, frequencies, hours of operation, and power among the several States and communities . . .," to justify its policy, the FCC allocated bandwidths across the country according to population and geography in an attempt to protect small markets. 44

The FCC determined that the best way to serve the "public interest" was to assign specific bandwidths to specific communities. 45 It proposed a Table of Assignments ("TOA") to make the most efficient use of the available television channels. 46 The TOA allocated the number of channels to various communities based on their population with respect to geographic area, with most, of the twelve powerful VHF channels going to the largest markets. 47 The FCC's top two priorities for the TOA were to provide television service to the entire country and to provide each community with its own broadcast station. 48 Once the FCC had allocated channels to achieve these two goals, it then set its sights on provision of at least two television services to the entire country, and a second broadcast station for each community. 49 Any remaining channels were assigned to communities based on their population, geographical location, and available television services. 50 This policy effectively limited the maximum number of stations in any market.

The FCC justified the TOA by claiming it was the most efficient method to allocate the limited number of available channels and the best

44 Id. ¶ 66.
45 Id. ¶ 12.
46 Id.
47 Id. ¶ 66.
48 Id. ¶ 63.
49 Sixth Report & Order, supra note 43, ¶ 63.
50 Id. ¶ 16.
way to protect the interests of individuals living in less populous areas.\textsuperscript{51} First, the FCC predicted that a TOA would lead to more efficient use of the available channels because of the fixed amount of space required between each channel to prevent interference between signals on adjacent channels.\textsuperscript{52} A preset plan would allow each channel to be used in a maximum number of locations, thus maximizing the total number of areas served. The FCC expected that a TOA would minimize the number of areas without service.\textsuperscript{53}

Second, the TOA was also intended to protect the interests of people in small communities which were not able to support their own television stations but might be able to in the future.\textsuperscript{54} The FCC feared that by the time these smaller markets were able to support a station, the larger markets would have used all of the available channels.\textsuperscript{55} The FCC rejected an alternate allocation plan that would have provided television service to a larger number of people rather than a larger number of communities.\textsuperscript{56} Finally, the FCC locked the TOA into place by refusing to accept applications for channels not designated on the Table with a few exceptions.\textsuperscript{57} In order to apply for channels not on the TOA, applicants would have to lobby for an amendment to the TOA through FCC rule making proceedings.\textsuperscript{58} The FCC justified this procedure based on the "public interest" argument that too many petitions for change would make the Table too complex.\textsuperscript{59} The TOA still governs the available broadcast channels in each community.\textsuperscript{60}

3. Broadband, Cable and Emerging Technologies

The FCC regulated cable television from its inception in the mid-twentieth century until the 1980s in a piecemeal fashion.\textsuperscript{61} Congress did not expressly confer power and guidelines to regulate cable television until the Cable Act of 1984, when it added Title VI to the 1934 Act.\textsuperscript{62} Broadband telecommunication can potentially utilize both wired and

\begin{itemize}
\item \textsuperscript{51} Id. \S 13.
\item \textsuperscript{52} Id. \S 14.
\item \textsuperscript{53} Id.
\item \textsuperscript{54} Id. \S 15.
\item \textsuperscript{55} Sixth Report & Order, supra note 43, \S 15.
\item \textsuperscript{56} Id. \S 78.
\item \textsuperscript{57} Id. \S 201.
\item \textsuperscript{58} Id.
\item \textsuperscript{59} Id. \S 202.
\item \textsuperscript{60} 47 C.F.R. 73.606 (2004).
\item \textsuperscript{61} See generally Krattenmaker, supra note 26, at 509–17.
\end{itemize}
broadcast spectrums, thus frustrating the separate regulatory schemes that the FCC has historically applied between wired and wireless communications. The FCC has struggled to respond to, let alone anticipate, these technologies, and in some cases, the market finds its own solution before the FCC catches up and makes a decision.

While the FCC first asserted authority over cable television systems for retransmitting broadcast signals, cable television has historically been a wired communication with hardware more similar to the Title II common carriers. Initial regulation of cable television systems was designed to protect broadcasters from potential economic injury; however, later legislation authorizing FCC regulation created policy goals for cable television which eventually lead to deregulation of the industry. The FCC maintained regulatory control over cable television which it used to help sustain broadcast television by promulgating “must carry” rules, requiring cable to carry local television station signals. This not only worked to protect “free” broadcast television but also to ostensibly fulfill the public interest goal of localism.

Various emerging technologies for data distribution, driven by broadband technology, have begun to create convergence among different modalities in the FCC’s three regulatory schemes. Both wired and wireless broadband providers have begun to merge services such as television, telephone, and internet into bundled, single-access point products. This has led to regulatory confusion and the application of antiquated regulatory schemes to technologies and companies that do not easily fit into neat packages.

Included in the confusion over how to regulate the industry, deregulation of the telecommunications industry per se is an ongoing issue in the United States. The vague “public interest” philosophy of the regulation has left the door wide open for the industry to argue that deregulation of the market is in the public interest. On the other hand, consumer advocates have argued exactly the opposite. The result is that courts are forced to arbitrate disputes over various policy decisions of the FCC. Among the most debated issues are limits on ownership of television and radio stations in the same market, and limits on cross-ownership of

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63 Id. at 62–63.
64 Id. at 74–75.
65 CREECH, supra note 23, at 151.
66 Id. at 152–53.
67 Id. at 156–57.
68 See generally id. at 310–19.
70 See KRATTENMAKER & POWE, supra note 1, at 34.
III. EUROPEAN TELECOMMUNICATIONS REGULATION

A. History of European Community Regulation

In Europe, a government monopoly historically controlled both the broadcast spectrum and the broadcast media. Partially in response to service and technology advances in the United States, the European Commission moved to change the regulatory structure. The Commission published a Green Paper in 1987 outlining how to develop the common European market for telecommunication services and equipment. In anticipation of a single European market, which was scheduled to come into existence in 1992, the Commission noted certain trends in telecommunications that needed to be addressed. Included were a more "competitive framework," changes in the infrastructure, competition among suppliers, manufacturer transitions, and equipment standardization. Over the next few years, the Commission issued directives to increase competition in the European market and break the nationalistic stranglehold.

1. The 1987 Green Paper and Subsequent Directives

The European Commission used several obscure provisions of the European Community Treaty to support its decisions to promote competition in the telecommunications industry. In particular, Article 90 of the Treaty prevented member states from granting "special or exclusive rights" contrary to various other rules in the treaty. Article 90 further provided that entities established as revenue producing monopolies may not hinder the performance of one another and must not limit the development of trade. Relying on these provisions, the European Commission argued that monopolies were subject to the competition rules of the Treaty.

71 See Prometheus, supra note 69, at 381.
72 Nihoul & Rodford, supra note 4, at 33.
73 Id.
74 1987 Green Paper, supra note 6, at 1.
75 Id. at 3.
76 Id. at 5.
77 See Nihoul & Rodford, supra note 4, at 34.
78 Id.
80 Id. at para. 2.
81 Nihoul & Rodford, supra note 4, at 35.
Utilizing its power to issue directives to enforce Article 90 of the Treaty, the European Commission promulgated directives to increase competition in the telecommunications industry.\textsuperscript{82} Some Member States, unhappy with their inability to continue operating telecommunications monopolies, appealed to the Court of Justice of the European Communities to annul the directives.\textsuperscript{83} However, the Court ruled that the European Commission had the power to identify obligations under the Treaty and thus the directives were legal and would stand.\textsuperscript{84}

Succumbing to the European Commission’s directives requiring competition in the telecommunications industry, the Member States moved to harmonize their laws governing several telecommunications areas.\textsuperscript{85} Terminal equipment requirements were harmonized so that technology across the European Union was compatible.\textsuperscript{86} Authorization to provide telecommunications services were standardized across Member States.\textsuperscript{87} An Open Network Provision was instituted to allow networks to be more easily connected across Member States.\textsuperscript{88} Universal conditions to access existing facilities were instituted less to regulate cross-border activity, but more to establish a framework to regulate operators across the European Union.\textsuperscript{89} Finally, provisions to ensure the access of disabled persons were enacted.\textsuperscript{90}


The European Commission reviewed the resulting state of the telecommunications industry in 1992.\textsuperscript{91} In this review the European Commission suggested that Member States liberalize infrastructures not owned by the local Telecommunications Operators, liberalize cable television, and review the policy of public telecommunications by 1996.\textsuperscript{92} The Commission also proposed to completely liberalize telecommunications services by 1998.\textsuperscript{93} To further define its goals, the European Commission issued a two-part Green Paper in 1994 directing the

\textsuperscript{82} EC Treaty, supra note 79, art. 90, para. 3.
\textsuperscript{83} NIHOUL \& RODFORD, supra note 4, at 37.
\textsuperscript{85} NIHOUL \& RODFORD, supra note 4, at 37.
\textsuperscript{86} Id. at 38.
\textsuperscript{87} Id. at 39.
\textsuperscript{88} Id.
\textsuperscript{89} Id.
\textsuperscript{90} Id. at 39–40.
\textsuperscript{91} ANTONIO BAVASSO, COMMUNICATIONS IN EU ANTITRUST LAW: MARKET POWER AND PUBLIC INTEREST 34 (2003).
\textsuperscript{92} Id. at 35.
\textsuperscript{93} Id.
Member States to extend telecommunications liberalization beyond the telephone system.  

The 1994 Green Paper aimed to work within the existing telecommunications policy framework to increase competition, consider technological and infrastructure advances and trends, develop a more global regulatory framework, and regulate to promote growth, competition, and employment in the telecommunications sector. The 1994 Green Paper further purported to increase competition in the terrestrial infrastructure of telecommunications. As of 1994, only the United Kingdom, Finland, and Sweden had competitive rather than monopolistic markets for infrastructure. The Commission concluded that the regulatory structure present at that time was limiting telecommunications development and advancement, and that the regulations were obstructing multimedia advancements.

The Commission pointed to changing market structures that necessitated changes in the regulatory environment. Specifically, the Commission pointed to the explosion in wireless services and companies, the increasing number of telecommunications companies that were developing in response to liberalization, international and cross-border joint ventures, increased privatization of Telecommunications Operators resulting in strategic alliances, and the birth of new telecommunications service providers that bundled and priced services.

The Commission also considered technological advancements and trends that required a new regulatory structure, including the increasing importance of wireless technologies and convergence of telecommunications services. The Commission pointed to regulatory agendas in the United States and Japan which pushed for development of "information highways" with five goals in mind: "[1] to encourage private investment; [2] to provide and protect competition; [3] to provide open access to the network; [4] to take action to avoid creating a society of haves and have-nots; and to (5) encourage flexible and responsive governmental action." The Commission concluded that market forces


95 1994 Green Paper II, supra note 94.

96 Id. at 15.

97 Id. at 24.

98 Id. at 24.

99 Id. at 25–26.

100 Id. at 35–36.
were required to explore telecommunications innovation, and that niche markets were the fastest growing segments of the telecommunications industry.\textsuperscript{101}

In its conclusions in the 1994 Green Paper, the European Commission outlined the licensing infrastructure while keeping in mind its goals of harmonization, liberalization, and fair competition.\textsuperscript{102} It also emphasized the goal of interconnection between the telecommunications networks of member states.\textsuperscript{103} To achieve this interconnection, the Commission proposed to remove barriers to interconnection, to allow for commercial negotiation of interconnection agreements, to allow national regulatory authorities to supervise this negotiation, and to have common principles at the European Union level.\textsuperscript{104}

3. The 1997 Green Paper

While the 1994 Green Papers further opened the door for telecommunications competition and proliferation in the European Community, the European Commission turned its attention to changing technologies with a 1997 Green Paper on technology convergence.\textsuperscript{105} The Commission recognized that the structure of the telecommunications industry was changing such that telecommunications devices performed multiple functions. Improvements in digital technology allowed service providers to combine different services, while digital broadcast technology allowed consumers to choose broadcast products on demand rather than on a set broadcast schedule (e.g. videos on-demand, pay-per-view).\textsuperscript{106}

The Commission pointed to these changing technologies and the resulting changes in market structure as a reason to reassess the landscape of telecommunications regulation. The Commission urged consideration of the reasons for regulation, and difficulties in maintaining a consistent regulatory scheme with quickly fluctuating technologies.\textsuperscript{107} Due to rapidly proliferating technologies, the Commission also considered that conceptualizations of broadcast bandwidth and licenses as scarce resources may become outdated.\textsuperscript{108}

Among the regulatory issues that the Commission addressed in the 1997 Green Paper were the possible need for new definitions of telecommunications activities, the possible changes to market entry and

\textsuperscript{101} 1994 Green Paper II, supra note 94, at 40.
\textsuperscript{102} Id. at 59–61.
\textsuperscript{103} Id. at 70.
\textsuperscript{104} Id. at 71.
\textsuperscript{105} 1997 Green Paper, supra note 6.
\textsuperscript{106} Id. at 4–5.
\textsuperscript{107} Id. at 19.
\textsuperscript{108} Id. at 19–20.
licensing, access to networks and systems, access to the broadcast spectrum, technological standards, and pricing. The Commission outlined principles for future regulation based on these issues, and suggested regulatory approaches and timetables. The principles and approaches were forward looking, and laid out in light of the significant advancements that had taken place in the past and that the Commission anticipated would continue to shift the telecommunications market in the future. This market-driven convergence approach to regulation indicated a significant change from the older regulatory framework in which broadcasting, telecommunications, and information technologies were regulated separately.

Following up on the 1997 Green Paper, the Commission issued a review based on responses to its proposals for regulatory change. In the 1999 Communications Review, the Commission provided for the development of a new framework directive within which to determine modern telecommunications regulation. This new framework sought minimal regulation while providing more legal certainty in the changing market. The framework also was to include separate and specific directives regarding consumer privacy, universal service, access and interconnection, and authorization and licensing. In response to the 1999 Communications Review, the European Parliament issued a series of directives implementing this new framework.

B. Modern European Community Telecommunications Regulation: The Framework Directives

In 2002, the European Parliament and European Union Council issued several directives relating to a new regulatory framework for telecommunications. The Framework Directive laid out new definitions for telecommunications that covered a broader range of technologies and network architectures. It also directed Member States to have national

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109 Id. at 21–26.
110 Id. at 33–35.
111 See NIHOUL & RODFORD, supra note 4, at 56.
113 Id. at ii.
114 Id. at v.
115 Id.
regulatory agencies that were independent of service providers, even if the Member States retained ownership of the services. These national regulatory authorities were required to create a successful market by following specific policy objectives. First, the national regulatory authorities had to promote competition in the telecommunications sector by ensuring “maximum benefit in terms of choice, price, and quality,” ensuring no limitation on competition, promoting investment and innovation, and “efficient use and . . . effective management” of bandwidth frequencies and station numbers. Second, the national regulatory authorities had to develop the market by getting rid of impediments to trans-European networks, actively encouraging the development of these networks, guaranteeing equal treatment of networks, and cooperating with other Member States’ regulatory agencies as well as the European Commission. Finally, national regulatory authorities had to better serve citizens by making certain that everyone had universal service, enacting consumer protection measures, maintaining data privacy, and complying with social policies providing access to disabled persons. In addition to specific policy guidelines, the Framework Directive outlined the various responsibilities of the national regulatory agencies for managing the radio spectrum, determining names and numbers, rights of way, and facility sharing.

In 1997, the Commission explored convergence less in the technological sense, and more in terms of the market structure. Changes in technology allowed certain telecommunications service providers to offer a wider array of services over their existing networks. For example, cable companies could provide not only broadcast and subscription television, but also internet access, telephone services, and pay-per-view services. The Commission saw a collapse in the market structure as the delineation between content, packaging, service, infrastructure, and terminals began to blur, and a larger number of companies became involved in more parts of the market structure. Because of the resultant market concentration in industry structure convergence, the Commission was cautious about the development of private monopolies in the telecommunications sector. An increasing trend in mergers, joint ventures, and strategic alliances drew

118 Id. at 39–40.
119 Id. at 40–41.
120 Id.
121 Id. at art. 8(2)–(3).
122 Id. at art. 8(4).
123 Regulatory Framework Directive, supra note 8, at arts. 9–12.
125 Id.
126 Id.
continuing scrutiny from the Commission.\textsuperscript{127}

The technology that has driven merging services is the ability to transmit and receive digital signals in broadcast and telecommunications technology.\textsuperscript{128} These advances have allowed for increased data transmission on the broadcast spectrum, paving the way for wireless technologies.

The increasing availability of wireless technology has led to an increase in technological convergence in which wireless, or mobile, technology is combined with fixed, or wired, technology. One example of convergence between fixed and mobile technology is a mobile device that may transmit to a local antenna, which is wired to an antenna in another location, which then transmits to a second mobile device.\textsuperscript{129} Mobile technology may also work to transmit wired signals locally, as in the case of cordless telephones and wireless internet routers.\textsuperscript{130}

By recognizing the inevitability of convergence through both business combinations and technological innovation, the European Commission was able to create a revised regulatory framework that addressed electronic communications across the board rather than segmenting broadcast media and telecommunications into separate regulatory schemes. For example, prior to the Framework Directive, the United Kingdom’s telecommunications were regulated by five separate bodies: the Office of Telecommunications (Oftel); Independent Television Commission; Broadcasting Standards Commission; Radio Authority; and Radiocommunications Agency.\textsuperscript{131} Guided by the convergence framework of the European Commission, the United Kingdom passed the Communications Act of 2003, which combined the functions of these agencies into a single body called the Office of Communications (“OFCOM”).\textsuperscript{132} This consolidation eliminated agency overlap in regulation and supervision, while creating a more efficient regulatory body that was closer in function to the Framework Directive’s structure.

The Framework Directive combined all electronic transmissions under the same regulatory scheme. It did so by expanding the definition of electronic communications network to include not only transmission but also “switching or routing equipment and other resources which permit the conveyance of signals by wire, by radio, by optical or by other electromagnetic means, including satellite networks, fixed (circuit- and

\textsuperscript{127} Id.
\textsuperscript{128} NIHOUL & RODFORD, supra note 4, at 48.
\textsuperscript{129} See id. at 45.
\textsuperscript{130} Id.
\textsuperscript{132} The Communications Act, 2003, c. 1, § 1 (U.K.).
packet-switched, including Internet) and mobile terrestrial networks, electricity cable systems, to the extent that they are used for the purpose of transmitting signals, networks used for radio and television broadcasting, and cable TV networks, irrespective of the type of information conveyed.13

While conceptualizing regulation under a convergence theme was new, the rules that the European Parliament applied approximated previous telecommunications rules, now extended to include broadcast media and data transmission.134 However, even though the Framework Directive used a convergence concept in regulating transmissions and the business side of the telecommunications industry, it did not address content regulation.135 The Commission has not yet addressed such questions as how content and transmission may overlap, and how transmission may affect content through intermediary recipients.136

One European concern with business convergence in the technological sector is the problem of dominance and market power. The Access Directive is suspicious of joint actions, monopolies, and abuse of dominant market power in a way that the U.S. regulatory policy is not. In fact, United States courts have placed the burden of proof on the party complaining of market leveraging rather than on the alleged monopolizing party.137 The Access Directive also does not rule out price controls in dominated markets.138

The Access Directive focuses mainly on the ability of networks to expand to new Member States while maintaining a competitive market and preventing domination by a single company or country.139 Member States are required to allow networks that wish to provide services to those States an opportunity for open negotiation to access those markets.140 Network operators are directed in their rights and responsibilities in providing public communication services. These rights and responsibilities are enforced by national regulatory authorities within each Member State, such as OFCOM in the United Kingdom.141 Among the obligations of network providers defined in the Access Directive are transparency in dealing,142 non-discrimination,143 accounting separation,144 and access to, or use of,
specific facilities. While obligations regarding access to specific facilities are up to the national regulatory authorities' determination, factors that that authorities must take into account are delineated.

National regulatory authorities are also governed by procedural mandates from the Access Directive. Authorities must publish information about network providers and must notify the Commission of network operators that have "significant market power." This mandate is in line with the Framework Directive's special controls on network operators with "significant market power." While dominance and market power had in the past been separate concepts, the Framework Directive equated the two by defining "significant market power" as a "position equivalent to dominance." Historically, dominance meant "the position of economic strength acquired by an undertaking and which permits that undertaking to behave, to an appreciable extent, independently of competitors, customers and ultimately consumers."

National regulatory authorities have discretion to impose obligations on parties with significant market power even before the dominant party negotiates with the other party. Dominant parties must, however, negotiate in good faith to allow access to less dominant parties.

Member State governments must create administrative access structures but may not "create barriers for entry into the market." The goal of the Access Directive was to "harmoni[ze] and simplifi[ze]" conditions for market access. By authorizing access of operators, Member States must consider operators' applications to build facilities, and must allow operators to provide electronic communications services. Member States are allowed to have different standards of scrutiny for radio stations; however, radio spectrum policy and decisions are specifically governed by the Radio Spectrum Decision.

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144 Access Directive, supra note 116, at art. 11.
145 Id. at art. 12.
146 Id. at art. 12(2).
147 Id. at ch. IV.
148 Id. at art. 16.
150 See NIHOUL & RODFORD, supra note 4, at 346.
151 Id.
152 Id.
153 Id. at 221–222.
156 Id. at art. 1(1).
IV. CONVERGENCE AND UNITED STATES REGULATION

Unlike Europe, the United States has not yet adjusted its regulatory framework to adapt to convergence theories. Legislation has taken a patchwork approach, adding to the 1934 Communications Act’s basic framework as new technologies or problems have emerged.\(^{158}\) This failure to adjust the regulatory structure to fit the telecommunications market led to controversy regarding exactly what types of electronic communications the FCC has control over.\(^{159}\)

The United States’ framework regarding broadcast spectrum is most in need of adjustment. Regulation of the broadcast spectrum continues to operate on the presumption that broadcast wavelengths are a limited resource. As technology advances, this presumption becomes less and less feasible.

Scholars have argued for decades that the FCC’s regulatory approach toward allocating bandwidth is inefficient.\(^{160}\) However, much of the FCC’s policy has been driven by an assumption that the broadcast bandwidth is a limited public resource that must be allocated.\(^{161}\) This assumption may be erroneous not only because advanced technology allows more broadcast channels per bandwidth segment, but because advances in receiving equipment allow broadcasting on spread spectrums rather than on specific bandwidths.

Even without new technology, the existing broadcast bandwidth is not being efficiently utilized.\(^{162}\) Bandwidth designated for rural areas and UHF television station allocations are some of the least used bandwidth, with spectrum allocated to the federal government almost completely vacant at any given time.\(^{163}\) From a technological perspective the conception of bandwidth as a scarce resource is erroneous – the problem lies instead with the sensitivity of receivers or antennae.\(^{164}\)

Digital receivers do not have to reconstruct the message signal like analog receivers do – they only need to determine whether a “0” or “1” of a binary signal was transmitted. Because a digital signal that has been slightly altered by other nearby waves still very closely approximates the binary signal, digital is much less susceptible to interference than is

\(^{158}\) Speta, supra note 2, at 3.
\(^{159}\) Id. at 5.
\(^{161}\) See KRATTENMAKER & POWE, supra note 1, at 14.
\(^{162}\) See On the Same Wavelength, THE ECONOMIST, Aug. 12 2004, at 57 [hereinafter Same Wavelength].
\(^{163}\) Id. at para. 11.
\(^{164}\) Id. at para. 14.
analog. While digital signals initially took up more broadcast bandwidth space than analog signals, signal compression has increased the availability of bandwidth. In compression digital signals, redundancies in the signal are removed. This means if a subsequent picture or sound is substantially similar to the one immediately preceding it, only the changes in the picture or sound are sent on the digital signal, rather than resending the entire signal. At a standard level of resolution (as opposed to high definition), signal compression allows four to eight more standard broadcast stations in the bandwidth needed for one analog broadcast station.

A. Developing Technologies

While television and radio bandwidths are still limited and allocated by FCC regulation, technologies that use radio frequency bandwidth scanning in an open spectrum concept are more problematic because regulation is currently defined by specific frequency allocations rather than broadband scanning or use. While the FCC has set technological standards for technologies like ultra-wideband, it has chosen not to regulate access to the broadcast bandwidth for these technologies as a subsection of radio frequency devices.\(^{166}\)

Ultra-wideband technology operates over frequencies that are already licensed for other uses. Currently the FCC permits ultra-wideband broadcasts between 3.1 and 10.6 GHz.\(^{167}\) Present day ultra-wideband broadcasts are low level, low power transmissions that create minimal interference with the existing signals that they broadcast over.

Ultra-wideband technology is a form of “spread spectrum” technology that spreads a signal over a broad range of frequencies at low power. Also included in this technology are wireless internet systems, which broadcast over the same spectrum ranges as cordless telephones.\(^{168}\) Other technologies may make the concept of unlimited bandwidth a reality, including “smart” antennae. These antennae can discriminate certain signals from background noise.\(^{169}\)

“Mesh networking” is another type of technology that may do away with the idea of a scarce broadcast spectrum. Receivers of signals retransmit to the next receiver down the line. This allows a low power signal similar to ultra-wideband to be transmitted across a network without using a high-powered electromagnetic signal that may be more likely to

\(^{168}\) Same Wavelength, supra note 162, at para. 15.
\(^{169}\) Id. at para. 16.
create interference or noise in adjacent signals.\textsuperscript{170}

The most futuristic and promising technologies are "cognitive radios," which would be able to discriminate signals from ambient noise, to move around the bandwidths looking for an open frequency on which to transmit, and to encode data in new forms of digital signals.\textsuperscript{171} Per Kevin Kahn, Director of the Communications Technology lab at Intel, "Communication is no longer a matter of frequency, but of computation."\textsuperscript{172}

Lower frequencies, on which radio and television currently broadcast, are better able to penetrate obstacles such as walls.\textsuperscript{173} This is part of the reason why the higher frequencies, or the so-called "garbage spectrum", are used more universally, but in short range transmissions.\textsuperscript{174} By re-conceptualizing the broadcast bandwidth as an unlimited resource, even a small amount of broadcast space in the penetrating lower frequencies could have an impact.

B. Recent U.S. Lawmaking Efforts

The Telecommunications Act of 1996 (1996 Act) is the legislature's most recent foray into broad scale telecommunications regulation. The 1996 Act did not expand the FCC's authority to specifically regulate the Internet.\textsuperscript{175} The FCC's authority to regulate broad areas of electronic communication is still uncertain and not statutorily provided for.\textsuperscript{176} This is problematic for the future of U.S. telecommunications regulation as converging technologies emerge in which regulated and unregulated functions overlap. In addition, states may not regulate areas that the FCC does not.\textsuperscript{177} States may not limit telecommunications service providers' entry into the market.\textsuperscript{178} While this approximates the Access Directive for the European Community, the issue being addressed is not the same. The Access Directive intervened in state-created monopolies that were controlling and limiting the telecommunications market by maintaining exclusive control. The 1996 Act prevents states from regulating or preventing the occurrence of de facto monopolies within a particular state. While preventing states from limiting access may work to expand the market, it may also result in unchecked market dominance that is not

\textsuperscript{170} Id. at para. 17.
\textsuperscript{171} Id. at para. 18.
\textsuperscript{172} Id.
\textsuperscript{173} Same Wavelength, supra note 162, at para. 26.
\textsuperscript{174} Id. at paras. 26, 28.
\textsuperscript{175} Speta, supra note 2, at 3.
\textsuperscript{176} James B. Speta, FCC Authority to Regulate the Internet: Creating It and Limiting It, 35 Loy. U. Chi. L. J. 15, 22–26 (2003).
\textsuperscript{177} Speta, supra note 2, at 4.
controlled by provisions for universal service.

C. Proposed Changes to the Regulatory Structure

1. Approximating the European Model

The FCC’s public interest, convenience, and necessity provisions for broadcast telecommunications access and regulation are generally similar to the broad goals of the European Community’s Access Directive, Universal Service Directive, and Authorization Directive. The FCC, however, is limited in its scope such that it has limited power to regulate newer technologies. The United States’ legislature has begun to consider the prospect of addressing the gaps in present telecommunications law. Referring to potential changes in telecommunications law, Senator George Allen remarked:

As many of us know, the 1996 Telecommunications Act was the first major overhaul of the communications policy in over 60 years. Since the passage of that law, remarkable changes have occurred in the technologies used to deliver telecommunications services. Some of these changes may be products of the 1996 act. However, many are due to the tremendous explosion of new and advanced broadband technologies.179

Even acknowledgement of the growing broadband industry does not address the broader technological advances made in electronic communications. If the legislation does not address emerging technologies like spread spectrum, smart antennae, mesh networking, and cognitive radios, then U.S. telecommunications regulation will continue to remain in the same position – behind the times and unable to apply existing regulations and laws to emerging technologies.

2. Potential Problems

In addition to growth in available technology, both horizontal and vertical bundling of services due to changes in the market and technology will require adjustments in market and technological architecture. Horizontal bundling of services increases efficiency in information delivery by allowing consumers to access multiple services from a single device or access point. This sort of “one stop shopping” has become increasingly available, and is of particular interest to businesses who may want to decrease their hardware expenditures. Improvements in technology will lead to increased opportunities to bundle services into a single device, while various forms of content production may be linked to a content offer. If an

integrated device allows for user feedback (or “cookies” similar to Internet usage), content providers can tailor and market their content and advertising more narrowly to consumers, while consumers will encounter less irrelevant content.

Vertical bundling of services may occur due to strategic alliances or mergers in which content production and service provision are part of the same company. Service providers may also become more interested in joining with companies that create the infrastructure so that they might more quickly integrate their content into emerging forms of infrastructure and technology.

Bundling, however, may lead to future problems, both legal and market-based. In the United States, the modern trend has been less regulation and less control of market dominance. Thus, U.S.-based companies will have to consider their market dominance when infiltrating and cross pollinating foreign markets. The European regulatory structures are designed to exclude domination by the economic powers of the United States and United Kingdom. The United States must also address harmonization of technology with the European Union—current technological standards in the United States do not effectively mesh with the European Union.

Although the United States has experienced a de-regulatory climate over the past twenty years, bundled services will still have to anticipate possible antitrust issues. It remains unclear how many services might be bundled and how much market domination the United States courts will allow.\textsuperscript{180}

V. CONCLUSION

The United States' current regulatory policy regarding telecommunications is due for an update. While the Telecommunications Act of 1996 attempted to adjust the law to changing times and technologies, the legislation did not adequately anticipate new technologies or changes in the market structure due to advancing technologies and bundling of services. The United States should act to rework its entire approach to telecommunications regulation by breaking down the boundaries between various technologies and using the “electronic communications” approach utilized by the European Community in its 2002 Framework Directive. The general goals of current U.S. telecommunications policies and the European Framework Directive are similar; the Framework Directives could, thus, be a useful roadmap to new legislation and regulation in the United States.

\textsuperscript{180} For more information on service convergence and antitrust issues, see, e.g., Edward D. Cavanagh, \textit{De-Regulation of the Air Waves: Is Antitrust Enough?}, 17 ST. JOHN’S J.L. COMM. 67 (2003).
While it may be wise to wait a few years to see how effectively the Framework Directive adjusts to changing technologies and market forces, the United States should act quickly to adjust its legislation and regulations to anticipate evolving technologies and market forces.