Rethinking Communications Regulation

Report of the 27th Annual Aspen Institute Conference on Communications Policy

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This report is written from the perspective of an informed observer at the Twenty-Seventh Annual Aspen Institute Conference on Communications Policy. Unless attributed to a particular person, none of the comments or ideas contained in this report should be taken as embodying the views or carrying the endorsement of any specific participant at the Conference.
Foreword

As the communications industries have evolved over the last century, communications regulation has remained entrenched in traditional regulatory regimes. In a world of converged media and communications, the current American regulatory framework still has silos of regulation that divide communications policy into distinct categories, essentially creating separate regulatory treatment for telephony, broadcasting, cable television, mobile and private communications, not to mention handset vendors, providers of operating systems, apps developers and so-called over-the-top players. And on top of all that, the current common medium, the Internet, is barely mentioned in the Communications Act as amended.

As the Internet and other information and communications technologies grow exponentially, and as a new ecosystem is emerging that could conflate previously distinct methods of communication into a single digital medium, questions arise as to whether these silos of regulation are still appropriate.

This overarching concern, viz., whether the Communications Act needs a radical revision, was the topic of the 27th Annual Aspen Institute Conference on Communications Policy held August 12-15, 2012, in Aspen, Colorado. Organized by the Aspen Institute Communications and Society Program, 38 leading communications policy scholars, experts, executives and citizen advocates gathered to rethink the government’s role in communications regulation.

The resulting report, Rethinking Communications Regulation, considers the key goals of a new communications regime and offers regulatory and non-regulatory approaches for achieving these goals in a digitally connected world.

Believing that there is a need for creativity and fresh thinking in crafting a new policy framework, the participants defined fundamental goals to provide a basis for future communications regimes. The group also carefully explored the elements of the current communications scheme that they deemed detrimental to progress, identifying six potential problem areas.
Using the previously defined goals, the participants then approached the creation of a new regulatory system from three different perspectives:

- an *ecosystem* approach that accounted for all the players in the media environment;

- an approach focusing on important *applications and services* being delivered, regardless of physical medium; and

- a *user* approach that focused on the needs of users and user communities.

Interestingly enough, similarities emerged. It became clear across the three approaches that the current regulatory system is not working well, and will likely continue to fall behind as the technologies evolve. While they did not recommend a complete rewrite of the Act, participants agreed that the Federal Communications Commission needs to be emancipated from its current framework that is organized around separate industry and media silos. And several suggestions were made on ways to update specific communications regulations.

The conference itself included both plenary and working group sessions. At times the author refers to working group recommendations, which were refined proposals to the larger group. The conference did not vote or ask for consensus on any of the proposals. So the ensuing write-up is essentially what conference participants considered and generally agreed on, short of formally accepting. Accordingly, unless someone is actually quoted in the text, the reader should not assume that any participant or organization agrees with any specific statement in the text.

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We also want to acknowledge and thank Richard Adler, our talented rapporteur, for his excellent synthesis of the discussions and debates that transpired during the Conference, as well as our participants, listed in the Appendix, for their contributions to these important issues. Finally, I want to thank Ian Smalley, Project Manager, for his help in producing the Conference and this report, along with the Communications and Society Program’s Assistant Director Patricia Kelly, who oversaw its editing and publication.

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RETHINKING COMMUNICATIONS REGULATION

Richard Adler
Rethinking Communications Regulation

Richard Adler

Introduction

Over the past several decades, the Internet has disrupted one industry after another—news, music, photography, movies, retailing and financial services. Just as the Internet has altered existing patterns of communications and offered entirely new ways to connect, it is now bringing about a major reconsideration of the way in which communications are regulated in this country.

Even as the communications landscape has changed dramatically over the past 80 years, the basic structure of communications regulation has remained largely intact (see “A Brief History of Communications Regulation” in the Appendix). Since 1934, there have been just two major pieces of legislation defining how communications are regulated in the U.S.: the Communications Act of 1934, which created the Federal Communications Commission (FCC) and established the basic goals and the regulatory framework for communications; and the Telecommunications Act of 1996, which moved toward deregulation and encouraged greater sector competition. But the basic structure of the FCC has remained unchanged. To this day, the Commission maintains different regulatory schemes for different media based on historical circumstances rather than present day realities.

Traditionally, communications regulation has been divided into two broad categories: first, regulation of broadcast media (radio, television, cable and satellites) that primarily distribute professionally produced, advertising-supported entertainment and information programming to a mass audience; and second, regulation of telecommunications (telegraphy, wireline telephony and mobile telephony) that provide two-way communications for individuals and businesses. Now the question is whether these separate “silos” of regulation still make sense in light of the new information and communications ecosystems that are reshaping the media landscape. In particular, what kind of regulation (if any) is most appropriate for the broadband Internet—whether
delivered over a wire or wirelessly—that seems poised to subsume all other media into a single digital medium?

To explore these questions, the 27th annual Aspen Institute Conference on Communications Policy met in August 2012, to rethink the government’s role in communications regulation. The meeting brought together a group of experts with extensive experience in the field: nearly half of the participants either currently or had formerly served at the FCC, while others were actively involved as scholars of or as advocates for regulatory actions in the field. The first session focused on defining a set of high level goals that could provide the basis for any future communications regime based on the premise that even though technology may evolve rapidly and the social and political climate will vary over time, fundamental goals for communications change more gradually. Next, the participants looked at the existing policy scheme in order to identify those elements of regulation that do and do not currently work. The participants then began to consider options for a new approach to communications policy: If the FCC or state Public Utilities Commissions did not exist today, how might one go about creating a scheme that most effectively addressed the main goals for communications policy? The remainder of the meeting was devoted to exploring three different approaches to developing a new policy regime: (1) an “ecosystem” approach that attempts to account for the multi-dimensional characteristics of the current media environment; (2) an approach that takes as its starting point the key applications and services being delivered, regardless of the physical medium involved; and (3) an approach that focuses on users and user communities and attempts to ensure that their needs are being met as well as possible.

Goals for a New Communications Regime

What should a new information and communications policy framework achieve? What are its most important goals? What is the relevance of traditional goals such as providing robust communication services, protecting consumers, expanding choice, providing for diversity of participation, promoting universal service, providing a positive environment for investment, protecting against harm and encouraging reasonable prices? And what goals are most critical and appropriate in a global digital economy?
There are two essential roles that the government can play in any area, according to Robert Pepper, Vice President for Global Technology Policy at Cisco. First, the government can promote good things—like innovation, investment or access to information. Second, it can act to prevent bad things from happening—such as unfair pricing, exploitation of consumers or breaches of personal privacy. An effective policy regime strikes a balance between these two objectives.

Reed Hundt, principal at REH Advisors, provided a context for the current discussion by reflecting on his experiences as chairman of the FCC from 1993 to 1997, the period when the last major piece of communications legislation was enacted. Hundt noted that the Telecommunications Act of 1996 was less than crystal clear in setting priorities for the future of communications. When the Act passed, one senator cheerfully told him that “we put everything in the bill, and then we put the opposite in. Good luck!” The result of this Congressional generosity, Hundt noted, was a “supple and flexible text” that left considerable leeway for interpretation. (Seth Bloom, General Counsel for the Senate Antitrust Subcommittee, added that many positive changes came about as a result of the ’96 Act.)

The ’96 Act focused mainly on deregulating the traditional telecommunications and broadcasting industries but empowered the FCC to support emergence of the Internet as the dominant medium. The advent of the World Wide Web and the web browser, which appeared the same month Hundt became FCC Chairman, contributed greatly to the popularity of the Internet by making it easier to use. The Web also provided a dramatic demonstration of the Internet’s potential for expanding access to information and other valuable resources. Then Vice-President Al Gore, whose enthusiasm for new technology is well known, expressed a vision, even before the web existed, that “a school girl in Carthage, Tennessee, would be able to visit the Library of Congress without having to buy a bus ticket.” Gore recognized the importance of the Internet and wanted the government to help it become “the dominant medium for the world.”

Hundt shared Gore’s excitement about this new medium. But exactly what should the government’s role be? Rather than meddling in the development of the Internet, Hundt believed that the most useful role the government could play was to remove barriers that could stifle
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its growth. In 1997, for example, the FCC under Hundt’s leadership expanded on an earlier Commission determination from the 1980s that exempted Internet access and other “enhanced” services from the Interstate Access Charges that local exchange carriers were allowed to impose on long distance calls.1 The exemption kept Internet access affordable and made flat-rate pricing viable. This strategy of focusing on removing regulatory barriers has worked well in allowing the Internet to grow and evolve.

In thinking about a new legal/regulatory regime, it is important to recognize that communications technologies can serve two big goals: the social or cultural goal of helping to increase knowledge through expanding and enhancing the exchange of information among individuals and groups, and the economic goal of increasing productivity and producing more jobs, thereby stimulating economic growth. Taken together, these two goals suggest that communications media are critically important because of the role they play in the intellectual vitality and the economic well-being of the country.

…the most valuable aspect of communications has become its role in fostering innovation….

– Yochai Benkler

Yochai Benkler, Berkman Professor for Entrepreneurial Legal Studies at Harvard Law School, agreed with the priority of these two goals, but added some nuances. In particular, he argued for putting more emphasis on the values of innovation, openness and interoperability. From an economic perspective, he suggested that the most valuable aspect of communications has become its role in fostering innovation, which may be even more central than supporting competition. From this perspective, the most urgent issue may be the availability of enough spectrum to allow the medium to keep growing and support robust experimentation with new wireless services.

In terms of social goals, communications networks are vital to ensuring citizens the capacity to speak. The importance of the Internet is not just that it can provide better access to information (e.g., the ability to
“visit” the Library of Congress), but that it can enable people to connect with others and express themselves in new and potentially powerful ways. From an architectural point of view, this potential implies the need to facilitate the development and protection of an “open, flat production platform” that is available to everyone. The key issues here include ensuring wide access to these resources by the public, the need to create a trusted, secure environment for users and the protection of individuals’ privacy that may involve imposing limits on the ability of governments, service providers or unknown outsiders to intrude in personal communications.

In actuality, the government has made “zero progress” in recent years in addressing online privacy comprehensively, according to Joe Waz, Senior Fellow at the Silicon Flatirons Center at the University of Colorado. The government, acting on its own, may not be the most appropriate body to provide such protection. A broad effort among many parties may be more effective in creating a robust trusted environment. In fact, voluntary, broadly representative and expert non-governmental groups like the Internet Engineering Task Force (IETF) and the Internet Corporation for Assigned Names and Numbers (ICANN) have worked well to build trust through their ongoing multi-stakeholder management of the Internet’s basic operating protocols and standards.

Rebecca Arbogast, Vice President for Global Public Policy at Comcast, also called for caution in constructing a new regulatory framework. In considering new roles for government in regulating communications, it is necessary to be mindful of the possibility of inadvertently doing harm. It is all too easy for the government to undertake actions that sound benign but in fact are not. In particular, it is important not to do anything to thwart the innovation and openness that have been hallmarks of the Internet’s history to date.

Although the telecommunications sector has performed well economically in the recent past, the reasons have little to do with the regulatory environment. According to Jonathan Chaplin, Director at Credit Suisse, what has made a difference to investors is the attractiveness of telecom dividend yields compared to historically low federal interest rates, and the industry’s ability to increase its margins through pricing increases and reductions in spending on advertising.
Many of the participants’ comments illustrate a tension that lies at the heart of any effort to create a new regulatory regime that is likely to remain relevant for the foreseeable future. On the one hand, the Internet is rapidly becoming the primary vehicle for all kinds of communications—blurring, if not erasing, the lines between previously distinct media. Any regulatory scheme that does not “get the Internet” may be doomed to irrelevance. As Kevin Werbach, Associate Professor at the Wharton School, points out, there may soon be no such thing as communications that are separate from the Internet. Already, the distinction between communications companies and computer and Internet companies is problematic: Microsoft owns Skype, which is effectively the world’s largest telephone company; Apple’s most profitable product is now an Internet access device, the iPhone; and Google has acquired Motorola, a leading provider of wireless equipment, and is in the process of building a community-wide fiber optic network in Kansas City. And the three companies offer mobile operating systems (Windows, iOS, Android) that are at the heart of the wireless revolution. Thus, any regulatory scheme that “does not get the Internet” will court irrelevance.

…there may soon be no such thing as communications that are separate from the Internet. – Kevin Werbach

On the other hand, there is wide agreement that the absence of government regulation historically has been key to the Internet’s robust growth. The Internet is perhaps unique in being a radically decentralized and open “network of networks” that no one owns and no one controls. This architecture allowed the Internet to scale to accommodate billions of users globally and provided a platform for the development of many novel applications and services through a structure that Kevin Werbach characterized as “a feedback loop that creates the conditions for its further growth” and Vint Cerf described as an ongoing process of “innovation without permission.”
This precedent suggests, at the least, a need for creativity and fresh thinking in crafting a new framework that improves on the current regime for communications regulation.

**Defining the Problem: The Current Policy Scheme and Its Discontents**

Before exploring new approaches to communications policy, it is useful to look at current problems with regulation to see what might be broken and therefore needs fixing. Stefaan Verhulst, Chief of Research at the Markle Foundation, pointed out that what new schemes one might propose will flow more or less directly from one’s diagnosis of where the current policymaking process is failing to “deliver the goods.” He introduced a set of six potential “narratives of the problem” that describe different areas of policymaking where the changes in the larger world have challenged, to some degree, the government’s traditional regulatory scheme.

**Intent of Regulation.** The first and perhaps most basic question is whether the underlying intent of communications regulation is being met by the current regulatory regime in two key areas—protecting the public interest and encouraging competition. In terms of protecting the public interest, questions have been raised about the failure of regulation to deal effectively with the erosion of personal privacy and an increasing threat from breaches of security that range from malware infections to identity theft. Public interest advocates have also argued that a digital divide—based on disparities in income, education level and/or geographic location—has not only persisted but grown more consequential as robust access to the resources available online becomes more critical for consumers and citizens. In terms of fostering competition, critics assert that the deregulatory experiment that was designed to expand the number of players offering telecommunications services has largely failed as the telecommunications industry has re-consolidated.

**Silos, Sectors and Layers.** The second challenge to current regulation comes from the impact of convergence. Are the silos that have defined communications regulation for more than half a century still viable? Does it still make sense to impose different regulatory requirements on wireline telephone companies, wireless phone companies and cable
operators? Is the concept of a common carrier still useful? Does an approach that adopts a “layers” model that parallels the way in which communications engineers think about networks and applications provide a better, more consistent guide to crafting relevant and effective regulations for different media?

**Innovation and Investment.** A third challenge is posed by the question of how well the current legal/regulatory scheme supports innovation and investment. Does regulation provide excessive protection to incumbent communication providers by erecting barriers to entry to new investors who want to offer new or improved services? Are there other regulatory barriers that are retarding innovation, either intentionally or unintentionally, by incumbents and others? If the Internet represents an important engine of economic growth for the nation, are there actions the government can take either to get out of the way of innovation or to do a better job of actively promoting it? What regulatory scheme would best serve to increase investment and accelerate innovation?

**Transformation and Cycles.** A fourth narrative of the problem is based on the fact that media (and especially the Internet) are not static entities, but are continually changing as the result of technological progress. Technology trends have a direct impact on how media function and, in turn, on what role regulation should play in optimizing those functions. In the area of telephony, for example, the near-universal penetration of wireline phones has eroded sharply as the result of the popularity of alternatives such as mobile phones and voice over Internet (VOIP) services. In the area of wireless communications, a potential approach to alleviating the spectrum crunch caused by the explosive growth of mobile traffic may be provided by “smart technologies” that permit much more efficient use of available spectrum though bandwidth sharing and challenge the rationale for exclusive assignment of spectrum bands to discrete users. The emergence of cloud computing and the Internet of Things are providing disruptive new technologies and applications that threaten existing business models and make possible new kinds of models. Regulators need to sort out what useful role(s) they can play in the midst of a continuous storm of technology-driven creative destruction.
Global Medium. A fifth area for possible reform: What role should regulation play in a global environment? A fundamental characteristic of the Internet is that it makes geography irrelevant. A user who clicks on a link on a web page has no idea where that page comes from; someone sending an email may have no idea where the recipient resides. The growth of the Internet from a handful of users to some three billion people worldwide is a remarkable story of growth that has largely ignored international borders. But today the role of the Internet is of concern to every nation in the world, and what other nations do in the way of regulation has an impact on what we do domestically. One immediate concern is whether the Internet’s openness and universal interoperability, based on the near-universal voluntary adoption of its core protocols and standards, will survive, or whether regional actions will lead to some sort of balkanization of the network.

Regulatory Innovation. A final challenge to the existing regulatory regime is actually an intriguing opportunity: recent years have seen a steady stream of proposals for new approaches to regulation that are designed to make the process more relevant to the realities of today’s communications environment. These proposals for “smart regulation” typically envision a more modest but more agile role for government in orchestrating an environment that supports innovation and other desired outcomes in a technologically neutral way (several of these new approaches to regulation are discussed in more detail in the next section).

There was wide agreement among the conference participants that the march of technology has transformed the media landscape in a variety of ways that challenge the viability of current regulation. Reed Hundt pointed to a number of sweeping changes that have taken place since 1996—some expected and some quite unexpected—that include problems that need to be addressed and opportunities that should be pursued. These include:

- The regional telephone companies effectively eliminated the long distance telephone companies (by offering combined local and long distance service); then, as the appeal of Plain Old Telephone Service (POTS) began to erode, they decided to become wireless companies. This represents one of the “largest transformation stories” in business history.
• The Bell Operating Companies’ monopoly on access to local phone service is being replaced by a monopoly on broadband access enjoyed the cable companies that already have at least a 66 percent market share and are “getting almost all of the new customers” for fixed broadband service.

• The Internet has subsumed almost everything else, as virtually all media go digital and migrate to IP. Remarkably, this shift includes not only electronic media, but many types of physical media as well (e.g., music, photography, newspapers, video and film), for which the Internet has become the primary means for distribution.

• Although no one expected wireless to become an alternative form of Internet access, it has become the key to delivering “thin streams” of content that do not require the very high bandwidth of wired broadband.

…the ability of technology to produce abundance for society is virtually untapped.

– Reed Hundt

• Communications has emerged as one of the most vibrant sectors of the economy: since 1995, there has been one trillion dollars in private investment in networks, which has generated some 2.1 million new jobs. As impressive as this is, the ability of technology to produce abundance for society is virtually untapped.

Len Cali, Senior Vice President for Global Public Policy at AT&T, questioned whether any single provider can maintain market power in the current environment. He agreed that the Internet has fundamentally changed the way that we communicate, and noted that a majority
of U.S. households are already “off the telephone company platform” for their basic phone service: in the 22 states in which AT&T operates, less than one-third of all household still get wireline phone service from an Incumbent Local Exchange Carrier (ILEC), a percentage which is expected to continue to fall.

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Source: Len Cali, AT&T, based on ILEC Residential Lines from FCC Local Telephone Competition Reports and census data.

How urgent is the goal of maintaining competition in communications? Blair Levin, Fellow at the Aspen Institute Communications and Society Program and the lead author of the FCC’s National Broadband Plan, noted that the U.S. has had 15 years of competition between the telephone companies and cable companies in providing residential broadband, but suggested that that competition now appears to be over. The question now is whether the telcos will accede to cable’s dominant position in the delivery of broadband or will offer a more attractive alternative in the form of ultra high-speed fiber optic-based broadband service. AT&T’s Cali disputed the claim of cable dominance in broadband. He stated that “speed” is just one of the broadband attributes that matter to consumers and ascribed the current popularity of mobile broadband to the appeal of pervasive access vs. the desire for absolute speed.
Role of Regulation

Is there still a useful role to be played by regulation in this turbulent environment? The communications ecosystem is “immensely complex” according to Richard Whitt, Global Head of Public Policy and Government Relations for Motorola Mobility, who asserted that policymakers do not appear to fully understand how the various networks and services that constitute the Internet actually work. Adding to the challenge for regulators is the global context that complicates the ability of this country to act unilaterally. For example, the assumptions and values that shape telecommunications policy in the United States may not be the same as those of other countries. According to Aparna Sridhar, Telecom Policy Counsel for Google, the U.S. is committed to openness, which translates into a reluctance to place restrictions on media, something that may not always be the case in other countries. On the other hand, Ellen Agress, Senior Vice President, Deputy General Counsel and Chief Privacy Officer for News Corporation, asserted that “a fundamental distrust of private commerce” still pervades our government, which tends to follow the assumption that “more is always better” when it comes to regulation.

Zachary Katz, Chief of Staff for the Federal Communications Commission, defended the FCC’s record by noting that it has made useful “transformational and incremental progress” in a number of areas. These include disability access, public safety and universal service reform. The FCC has shifted the target for universal service subsidies from traditional phone service to broadband in rural areas that have lagged behind urban areas in getting access to advanced services. However, FCC Commissioner Ajit Pai acknowledged that the Commission is “hopelessly constrained” by the existing regulatory silos based on distinctions between media, and that it “gets into absurd contortions” when it attempts to develop sensible regulations given these constraints. To some degree, the Commission has the ability to update its own rules, but it probably needs greater authority than it currently has to fully modernize its role. Federal Trade Commissioner Maureen Ohlhausen pointed out that the FTC, unlike the FCC, focuses on the interests of consumers rather than on the structure of the industry or the role of different participants. This tends to give the FTC greater flexibility in its actions.
Norman Ornstein, Resident Scholar at the American Enterprise Institute for Public Policy Research, addressed the prospects for legislative action to revamp federal communications regulation. He cautioned that in the current hyper-polarized political climate, there is “zero chance” of achieving the kind of bi-partisan support that helped pass the 1996 Act for any new communications legislation—or, in fact, of getting “bi-partisan support for anything.” On the other hand, individual states have been actively moving toward deregulation. Julia Johnson, President of Net Communications, suggested that these state actions might at some point provide a precedent for action on the federal level.

New Approaches to Policymaking

What would happen if the FCC or State Public Utilities Commissions did not exist? If there were a clean slate for regulation, what kind of mechanism might we create that is best suited to deal with the communications environment as it exists today, and as it is likely to exist tomorrow?

As noted above, efforts to rethink and revamp the communications policymaking process are not new. In 1989, Henry Geller, who had been General Counsel of the FCC as well as the first Administrator of the National Telecommunications and Information Administration, published the study *The Federal Structure for Telecommunications Policy* that described the telecommunications policymaking process as “seriously flawed.” The study called for the creation of a new executive branch agency, the Federal Telecommunications Agency, that would be responsible for much of what was currently being done by the FCC and the NTIA. In 1998, Harry M. Shooshan III, who had served as Chief Counsel to the House Subcommittee on Communications, published “A Modest Proposal for Restructuring the Federal Communications Commission,” which recommended replacing the five member commission with a single administrator. Shooshan argued that the Commission’s inefficient structure often resulted in delays in taking action and produced decisions that were “formulaic, typically reveal very little of the Commission’s ‘thinking’ and [that] offer little by way of insight into underlying philosophy.” By contrast, a single adminis-
trator would likely to have more industry-specific expertise than typi-
cal FCC commissioners, and the decisions made by a single individual
would be more likely “to reflect a clear philosophy, be internally con-
sistent and present a more logical policy roadmap.”

**From Silos to Layers.** One of the problems identified by Stefaan
Verhulst is this disconnect between media-specific regulation and the
realities of digital media. The traditional model of regulation is based
not only on assumed distinctions between different media—technical
characteristics, type of function, economic structure, audience, etc.—
but also on legislative decisions that established different regulatory
mechanisms for different media enshrined in different titles in the
Communications Act. The result has been to create separate “silos” of
regulation that have become increasingly anachronistic as technology
has blurred the lines between media.

Legal scholars and others have proposed substituting a horizontal
“layers” model for these vertical silos. A 1997 FCC Working Paper
titled “The Digital Tornado,” by Kevin Werbach, who was then Counsel
for New Technology Policy in the FCC’s Office of Plans and Policy, was
a pioneering effort to encourage this new approach. In 2000, Yochai
Benkler proposed a regulatory approach that distinguished among
three layers of the Internet—physical, logical and content—with each
subject to different types of regulation. Participants in the 15th annual
Aspen Institute Conference on Communication Policy, held in 2000
on “The Transition to an IP Environment” reached a “near consensus”
that “conceptually distinguishing the technical layers of the [IP-based]
system offers a new paradigm that can clarify regulatory problems
and point to their solutions.” And in 2004, Richard Whitt published
a paper that contended that “while networks and markets have been
evolving towards an all-IP world, the U.S. legal and regulatory frame-
work remains stuck in the past,” and called for a similar layers-based
approach to regulation.
The layers-based policy framework is based on the multi-level protocol stack that network engineers use to describe the different components that make up the Internet. It starts at the “bottom” with the physical layer (telephone line, coaxial cable, fiber, wireless, etc.), then a logical layer consisting of transport protocols (e.g., TCP/IP, HTTP) that define how messages are encoded and transported online. Above this is the application layer that defines how the network is used (e.g., search, social networks, web sites), and at the top of the stack is the content layer (e.g., text, speech, image, video, music, telemetry) that is the actual information that is conveyed by the Internet.

Proponents of this approach argue that in a converged world, such an approach provides a more logical, more consistent way to identify issues that may need—and equally important, may not need—regulatory attention. Thus, this scheme provides a way for communications regulators to focus attention on the broadband functionalities operating in lower, physical levels, without impinging on other, higher level functions. Similarly, policymakers concerned with potential problems involving upper layer activities (e.g., applications and content) can devise actions that will not disturb the lower layers. In other words, the most effective regulations will focus narrowly on a single layer at a time to avoid creating collateral damage or other unanticipated problems.
from crossing the boundaries between layers. (In his 2004 paper, Whitt describes the negative consequences of several domestic and foreign regulatory actions that failed to respect the integrity of the layers.)

In essence, this approach provides a way to separate consideration of content from the physical medium used to transport it. It also allows regulators to formulate consistent policies based on actual functions rather than the particular technology involved. For example, it facilitates creation of a single set of rules for broadband rather than establishing different requirements for telephone- and cable-based broadband services. Despite more than a decade of largely academic discussions pointing out the desirability of replacing a silos approach with a layers-based model, this advocacy has had limited practical impact on the policymaking process to date.10

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**A layers-based policy framework approach provides a way to separate consideration of content from the physical medium used to transport it.**

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**Regulation 3.0.** In addition to the emergence of an all-encompassing digital medium, a second major factor is challenging traditional (and, potentially, non-traditional) approaches to regulation. This is the relentless rate of change that characterizes digital media. Exponential increases in the performance of these media, driven in large part by Moore’s Law, have made possible entirely new categories of applications. In addition, as noted earlier, the open architecture of the Internet has been responsible for an unprecedented torrent of innovations that pose a formidable challenge to policymakers to keep up with the pace of change and increase the pressure for new, more agile approaches to regulation.

A number of ideas have been offered for what a viable regulatory approach might look like in an environment that is complex, decentralized, highly interconnected and continuously changing. In addition to altering the conceptual framework for communications regulation, there have also been proposals for new approaches to the way in which policies are developed and implemented.
For example, Eli Noam of Columbia University, an active contributor to communications policy thinking for many years, proposed “Regulation 3.0 for Telecom 3.0.” According to Noam, Regulation 1.0, which worked reasonably well for nearly a century, was based on regulating “a traditional monopoly system;” while Regulation 2.0, which prevailed from passage of the 1996 Act to the present, was based on fostering competition in a more open environment. What is needed now, Noam believes, is a third approach that forgoes development of elaborate *ex ante* rules in favor of a “more flexible, common-law style system based on broad principles” that acknowledges that it is virtually “impossible for government processes to match [the] rate of change” that characterizes digital technologies. Under this approach, regulators would articulate key principles and allow industry participants to decide how to follow them, then track how things work in actuality and create a “fast-track system of semi-judicial hearings” to provide arbitration and enforcement, if necessary.

*…it is virtually “impossible for government processes to match [the] rate of change” that characterizes digital technologies. – Eli Noam*

*Adaptive Policymaking.* In a series of articles, Richard Whitt makes a case for the adoption of what he describes as Adaptive Policymaking. He introduces this concept by first summarizing the central ideas of Emergence Economics, a growing field that is challenging many of the assumptions of classical “old school” economics by incorporating insights from “cutting edge schools of thought, including complexity science, behavioral economics, game theory, network science, new growth theory and competition theory.” A key insight of this field is that in the Internet era “we live in an emergence economy [in which] individual agents, acting through interconnected networks, engage in evolutionary market processes…which generate a host of emergent economic phenomena.” Different economic sectors and different policymaking entities, including the government, are best understood as complex adaptive systems (CASs), “each shaping, but not fully determining, the other.”
### Nine Principles for Adaptive Policymaking

1. **Cautious:** All decisions are based on models, and all models are wrong. The market environment is enormously complex and poses huge challenges to our analytical capabilities. But caution should not be an excuse for indecision.

2. **Macroscopic:** The adaptive policymakers should have the big picture in mind at all times. Taking a deep view of today and a broad view of tomorrow will help policymakers appreciate that successful plans and programs should be rooted in driving innovation.

3. **Incremental:** Policymakers must learn to take small steps. The best policymaking process is often evolutionary, not revolutionary.

4. **Experimental:** The combination of uncertainty and constraints on predictability creates the necessity for policymakers to experiment.

5. **Contextual:** There is no simple set of policy rules that applies to all situations, times and circumstances. Good policy is well-grounded and contextual.

6. **Flexible:** Deep uncertainty about complex systems like markets, or especially the Internet, implies the need for flexibility.

7. **Provisional:** Adaptive policymakers should favor reversibility of initial decisions in the face of contrary evidence.

8. **Accountable:** Coping with uncertainty means learning from experience.

9. **Sustainable:** Sustainable policies are rules that are both politically adoptable and for which the desired policy goals are reasonably likely to be achievable.


Like Noam, Whitt believes that such a complex, dynamic and unpredictable online environment requires a new approach to regulation that shifts the regulatory process from pursuing “static optimization of parameters to an evolutionary paradigm that emphasizes adaptability.” Markets are highly efficient mechanisms for driving innovation that lead to growth, but they are not perfect. Rather than attempting to constrain or direct the outcomes of market processes, the goal of potential regulation of online activity should be to “improve the market’s ability to formulate and present options to agents while leaving
Peter Pitsch, Executive Director, Communications Policy, for Intel, described this shift as focusing on inputs rather than outputs of marketplace activities. He noted that mobile phone penetration in Africa has now reach 70 percent of the population as a result of having the right market incentives in place rather than any sort of mandate.

Whitt identifies four adaptive strategies that policymakers should follow in order to contribute to the effectiveness of markets by “tinkering not tampering” with their functions:13

1. **Feeding the algorithm** – since free markets, by themselves, tend to “produce too little technological innovation relative to what is optimal,” regulators can help to accelerate market evolution by encouraging additional inputs.

2. **Fostering connectivity** – because active interchange among market participants is critical to progress, regulators should facilitate communication by strengthening or adding links among market nodes.

3. **Shaping the landscape** – although regulators should not attempt to pick winners and losers, they can provide market-based incentives that help expand diversity, competition and growth within the market’s “fitness landscape.”

4. **Enhancing feedback** – where information or transparency gaps exist in the marketplace, regulators can create or improve feedback mechanisms by providing useful information and/or decision-making tools to market participants.

**Defining a New Approach to Communications Policy**

In inviting the conference participants to take a fresh look at how communications policy is made, Aspen Institute Communications and Society Program Executive Director Charlie Firestone observed that historically in communications regulation in the early times of scarcity, lawyers tended to set the agenda for policymaking, while in times of abundance, it was the economists who set the agenda. Today, however,
neither of these perspectives is sufficient to guide the policymaking process. But where to begin?

To provide a starting point for the discussion, Richard Whitt of Motorola Mobility proposed a rationale for government oversight and regulation of broadband infrastructure. Broadband, which has emerged as the dominant means of access to the Internet, is clearly important. And it can be provided by multiple networks—telephone, cable, cellular and satellite. This calls into question the adequacy of traditional approaches that provide different regulatory schemes for different media. But what is unique about broadband infrastructure that calls for some form of government intervention? Whitt identified four distinctive aspects that broadband shares with others forms of physical infrastructure that are often subject to regulation:

1. Broadband is a high fixed-cost business (i.e., capital requirements to provide last mile access to individual customers are substantial).

2. Broadband relies on public resources and other government benefits (e.g., rights of way for cable, spectrum for wireless service).

3. The market is relatively concentrated (as noted earlier, both wired and mobile broadband markets are characterized by a few large providers).

4. Substantial externalities exist (robust, widespread Internet access creates numerous spill-over effects in economic and social goods that greatly exceed the business goals of providers).

But if these factors suggest a need for government to be involved in the broadband market, what form should such involvement take? According to Whitt, it is useful to revisit the legacy of “common carriage”—from inns to roads to telephone networks—to ascertain whether any aspects remain relevant today. The rationales employed by governments over the centuries for imposing common carrier obligations include:
• Private concentration of ownership (this issue has historically been dealt with by well-established anti-trust regimes, and does not necessarily raise novel issues in terms of broadband networks).

• Involves a “public calling” (Sir Matthew Hale, writing in the 17th century, distinguished between “private” and “public” facilities, such as wharves, with the latter defined by their unique role in commerce where no viable alternatives exist for customers. The concept was later broadened to cover various public utilities whose inputs are deemed to be critical to the markets they serve and therefore subject to regulatory control\(^{14}\)).

• Reliance on public resources (such as easements, public takings, rights of way, pole attachments and radio spectrum) that are limited in supply and therefore available to only a few entities.

• Presence of public subsidies and other tangible benefits (e.g., universal service funds, Broadband Technology Opportunities Program, depreciation allowances, special tax treatments) that are based on the assumption of a public interest in expanding access to broadband infrastructure.

• Existence of a “bailment” relationship (under common law, a “duty of care” obligation is incurred by an entity that takes temporary possession of goods in order to transport them to a specified destination: e.g., the owner of a wagon business who agrees to convey a 100 barrels of ale accepts the responsibility to deliver all 100 barrels in good condition).

In light of these fundamental characteristics, Whitt suggested that much of the existing regulation of communications services as found in Section II of the Communications Act could be swept away. In its place, policymakers could consider two general duties applicable to broadband network providers that voluntarily supply users with Internet access: first, a “duty of care” (bailment) to users who rely on
In other words, broadband providers should, (1) agree to market arrangements to pass bits between themselves and other networks; and (2) not “mess around” with the delivery of bits that they carry on behalf of their end-user customers and other third parties. Whitt described this as a radically deregulatory proposal that would still provide some important fundamental protections for online users.

Even if it were possible to reach agreement on what aspects of broadband networks should be subject to government oversight, questions remain about which governmental body should be involved: Should it be the FCC? Another agency? Should the FCC’s current scope of authority be shared with another agency? For example, should the FCC concentrate solely on the “wholesale” side of communications while leaving consumer issues to the FTC? Should the FCC be merged into a larger agency incorporating the National Telecommunications and Information Administration (NTIA, currently part of the Department of Commerce)? Should there be an agency at all?

Another important question is whether and how various non-governmental bodies and processes could be employed to minimize (or tailor) the direct involvement of regulatory bodies such as the FCC and the FTC in broadband-related matters. At present, there is no direct government involvement in most areas of Internet governance. But there is a vast array of non-traditional forms of regulation ranging from formal governmental laws and regulations through co-regulation, self-regulation and voluntary codes of conduct to standards and norms that may only be socially enforced (see chart below). Some of these are already being used to govern the Internet (including self-governance mechanisms such as ICANN or ITEF), and other types of regulation could be utilized. The key point is that there is a wide range of alternatives that can be used to reach widely agreed-on outcomes (like a free and open Internet).
While supporting the approach of separating broad goals for regulation from the specific mechanisms used to achieve them, Robert Pepper of Cisco raised several questions about the implications of Whitt’s premises. For example, if regulation seeks to maintain a “duty to interconnect” among Internet service providers, what should the price be for providing interconnection and how should that price be determined? Is there any way to avoid becoming involved with detailed regulatory proceedings, or is there a “light touch” model for regulation that could be effective? Pepper also noted that for almost all of its 80-year history, much of the FCC’s activity has been adjudicating disputes between rent-seeking entities through rulemaking proceedings, a process in which the broader public interest has not always played a prominent role. Is it possible to devise a dispute resolution process that is not essentially a rent allocation process? In Whitt’s view, the FCC could be transformed into an adjudicatory body available on a case-by-case basis only when market mechanisms like self-regulation or voluntary standards-setting are unable to deal effectively with a particular problem.
In assessing the continued relevance of the FCC, several distinctive roles for the agency were noted. Jonathan Leibowitz, Chairman of the Federal Trade Commission, pointed out that agencies like the FCC can play a useful role in preventing litigation through its rulemaking authority. Former FCC Chief of Staff Eddie Lazarus added that at a time when litigation is increasingly costly and time consuming, there is real value in having alternative dispute resolution mechanisms that are quicker and more efficient. Lazarus also noted that the FCC has made a significant contribution in promoting development and deployment of public safety applications of telecommunications technologies. David Honig, President and CEO of the Minority Media and Telecommunications Council, suggested that the best argument for maintaining the FCC is its role in promoting diversity. Without the Commission, we might well have a two-class society in which vital telecommunications services are not universally available and media in which minority voices are not represented. Federal Communications Commission Chief of Staff Zachary Katz pointed to the importance of the Commission’s role as an evangelist for the continued advancement of communications technology and services (e.g., sponsoring preparation of the National Broadband Plan that was published by the FCC in 2011, and creating broadband.gov, a website that offers a variety of information and tools related to broadband technology). Katz also noted that there is value in having an agency to implement policy that can move more quickly than Congress where action is often slowed or stymied by political divisions.

Several limits of Commission regulation were also noted, which called into question whether there is a compelling rationale for a specialized agency like the FCC. Commissioner Maureen Ohlhausen suggested that a non-industry specific agency like the FTC is better able to recognize that the issues in one field, like communications, are not necessarily unique and can benefit from the experiences in other fields (such as the pharmaceutical industry, which also provides a critical product). Agencies with a singular focus are also more vulnerable to industry capture. Ellen Agress, at NewsCorp, added that a lot of what the FCC currently does, such as the review of proposed mergers, is duplicative with other agencies. She also questioned the involvement of the FCC in issues related to media content.
Finally, Anna Gomez, Deputy Assistant Secretary of the NTIA noted that it is important for all parties to be included in regulatory processes that impact them, but the FCC does not have jurisdiction over all stakeholders who are involved in many issues. As an example, AT&T’s Len Cali pointed out that much of the attention in developing broadband policy has overemphasized “last mile” ISPs. The broadband ecosystem is, in fact, more complicated, with participants like search engines and handset makers playing important roles that could potentially raise the same or greater regulatory issues as those typically discussed (only) with respect to ISPs.

The effectiveness of the FCC in dealing with problems caused by monopoly power was also called into question. Reed Hundt noted that “an earned monopoly” can be a good thing, but it is not legitimate for a monopoly to use regulation to protect itself against competition forever. The FTC’s Leibowitz concurred that regulators need to act whenever a monopoly engages in exclusionary conduct. The FCC does have a record of attempting to address problems of monopoly control, for example, in requiring incumbent local exchange carriers (ILECs) to provide access to their facilities to potential competitors. But in the long run, these initiatives did relatively little to expand competition for local phone service. As noted earlier, the strongest competition to traditional wireline phone service has come not from regulatory action but from the emergence of Internet-based phone service (VOIP) and from wireless telephony.

Is the public better off with vigorous competition from many providers or with a single (or a few) large, well-regulated entities? Are the multiple functions currently performed by the FCC best provided by a single specialized agency or should its roles be divided among multiple more specialized agencies? Or would the challenge of regulating the communications industry be more effectively carried out by an agency with a broader, less industry-specific mandate?

In an increasingly complex world, many issues (such as mobile health) cut across the boundaries of multiple agencies and, as a result, can fail to get the attention they deserve. What often gets left out of agency proceedings is a focus on the public good. Stefaan Verhulst of the Markle Foundation suggested that a clear, well-defined process is needed for agenda setting, but that such a process could be done
through an inclusive multi-stakeholder process. Verhulst proposed a hybrid model whereby the government sets the rules for communications but leaves their implementation up to industry, with the government providing for enforcement of the rules.

**Three Perspectives on Communications Policymaking**

If communications regulation is no longer to be defined by separate discrete technology- and industry-specific “silos,” what should be the basis for policymaking? Participants in the Aspen conference explored three different starting points that provided fresh perspectives on how the policymaking process might be remade to be more relevant to the realities of the emerging all-digital environment. The first looked at policy from the perspective of the users of communications; the second started by attempting to define the ecosystem of participants who are involved in creating, operating and using the digital communications infrastructure; and the third took as its starting point the range of applications and services supported by the broadband Internet without reference to a specific technology. One of the most striking conclusions from this process is the degree of commonality in the recommendations for reforming the policymaking process that flowed from these different starting points. Before we look at these recommendations, let’s briefly summarize the three perspectives.

**User Perspective.** One answer to the question of “who are the users?” of the Internet is “everyone.” But users can also be looked at in terms of different, if overlapping, categories, each with its own distinctive set of needs and interests:

- Residential customers (urban, suburban and rural)
- People with disabilities
- Minorities
- Parents
- Children
- Elderly
- Business end users
- Businesses on the net
• Healthcare users (patients, clinicians, researchers, etc.)
• Education users
• Government (as service provider, information provider, data collector, etc.)

Of course, there are also “illegitimate users” that include hackers, pirates, criminals, perpetrators of fraud and even state sponsors of espionage and cyber warfare—all of whom pose threats to ordinary users.

The next question is “what do users want?” and, again, there are multiple answers, with each sub-group of users probably giving a somewhat different priority to the elements in the list:

• Choice
• Reliability
• Quality
• Affordability
• Ease of use
• Trust (confidence that my data is secure and private)
• Device portability
• Content portability (control over my own content)
• Transparency and disclosure (access speed, bandwidth consumption, safety)
• Accessibility
• Diversity in content

What do users want from the government? Although they may look to the market to provide for most of their needs and wants, they are likely to turn to government when something goes wrong and they have a problem (as an individual or as a group) that they want to get resolved. The Federal Trade Commission has the authority to protect consumers against “unfair, deceptive, or fraudulent practices” and to “promote and protect free and vigorous competition,” while the FCC regulates different media under different titles of law according to the “public interest, convenience and necessity.” The FCC is responsible
for promoting broadband adoption, but it is not clear how broadly the Commission’s authority extends over all of the interests of users. What the FCC needs to be successful in meeting the diverse needs of users is clarity of purpose and a broader scope of authority over the communications ecosystem. It also needs the ability to act in ways other than formal rulemaking and adjudications. This might include the ability to experiment with different multi-stakeholder models that would bring everyone to the table.  

Several conference participants suggested that the FCC could experiment with solving problems in new ways. For example, it could use crowdsourcing to develop innovative solutions to challenging problems. Another possibility would be to establish a call center staffed with knowledgeable people who would seek to resolve many consumer issues. (Ken Adelman, Vice President of Movers and Shakespeares, commented that he had never called the government directly for advice and could not envision ever doing so.)

**Ecosystem Perspective.** A second approach to policymaking began by attempting to define the broader ecosystem that makes up the broadband Internet sector. Ecosystems are typically made up of different species that interact with one another. The overall system is dependent on these interactions and cannot be understood by looking narrowly at one species. Moreover, the borders of an ecosystem are permeable and cannot be neatly bounded.

The first realization from this perspective is that the participants in the ecosystem are not just regulated companies. Actors include a multiplicity of government and non-government entities that go well beyond the agencies explicitly associated with communications regulation. Second, the communications ecosystem is global in nature and cannot be limited to domestic players. Finally, the ecosystem includes individuals in the roles as consumers and producers, and as citizens. The chart below is not intended to be comprehensive or definitive but rather is a discussion tool that is illustrative of the range of actors who participate in the communications.
These actors all interact in a dynamic “tussle space” in which everyone seeks their own goals and strives to maximize their benefits. The challenge for a regulator or policymaker is to facilitate or constrain these interactions in order to produce the “best outcomes.” Of course, what these outcomes are depends on one’s perspective, but in general would include both economic goals, with an objective to improving overall welfare, as well as the goal of protecting and enhancing the rights of citizens.

The ecosystem includes a wide range of components: not only the communications networks that provide connectivity, but a variety of hardware devices and software apps, operating systems, protocols and standards that enable devices and applications to interconnect, content of many kinds, and storage both local and in the cloud, as well as governmental and non-governmental bodies that have influence on activities within the ecosystem.

**Application and Service Approach.** The third perspective on communications policymaking is perhaps the most pragmatic, starting by identifying the most critical communications issues that confront or
are likely to confront policymakers in the near future. These policy challenges (or “missions”) are all involved in some way with the emergence of broadband-enabled Internet as the single dominant platform that can, at least in theory, perform the functions of virtually all existing media.

These key challenges include:

- **IP Transition**: Many media have already moved from analog to a purely digital form, with varying degrees of government involvement. Music and photography made the switch with little or no government intervention. In 2009, broadcast television switched to all-digital transmission under a mandate from the FCC. As noted earlier, millions of telephone customers have decided to give up their conventional phone service in favor of either cellular service and/or Internet-based VOIP service. But even while the traditional Public Switched Telephone Network (PSTN) continues to shrink, it remains subject to much more extensive regulation than VOIP. As VOIP continues to expand and the PSTN continues to shrink,
it is possible to see a point at which it no longer makes sense to maintain dual systems but to convert all users to IP-based service. But should all the regulatory provisions and processes that have historically been placed on the PSTN be carried over to the new environment or is there a new approach that better reflects the new reality?

- **Spectrum Reallocation:** As wireless communication has soared in popularity, the limitation of the available spectrum to carry this traffic has become more evident. The government and the FCC have undertaken efforts to reallocate a larger portion of the spectrum, much of which is assigned for use by the government itself, for wireless communications and other innovative uses, but this process has gone slowly. What should be done to streamline and speed up this process?

- **Universal Service:** In the world of traditional telephony, universal service was defined simply as providing every household with access to dial tone. Reaching this goal typically involved providing subsidies to low income or rural users so that they had access to phone service at an affordable rate. But what is the equivalent goal in terms of broadband Internet infrastructure? Is it feasible to provide truly universal access to such a network capability? Is there a minimum speed that qualifies as broadband? Are there other service characteristics that should be included? Who should pay to subsidize such a service?

- **Competition/Market Structure:** The FCC and other government agencies have a long track record in first, regulating the Bell System monopoly and later, supporting competition in the telephone industry. The FCC also has experience in restricting ownership of broadcast facilities to limit concentration of power and encourage diversity. But what sorts of policies are appropriate for the more complex, interconnected world of converged media? Do traditional anti-trust principles provide sufficient guidance for policymaking or is a new approach needed to protect the integrity of the Internet and its continued openness?
• **Adoption/Use:** Beyond affordability, are there other barriers to using new media that require regulatory attention? As more and more economic and social activities move online, it could be argued that ensuring that everyone has access to the Net becomes more urgent. Is regulation needed to ensure accessibility for the handicapped? For non-English speakers? Has digital literacy become a critical skill for all citizens? If so, how should it be taught?

• **Innovation/Investment:** Related to the previous issue is the question of whether the government can play a constructive role in spurring innovation. One of the most distinctive characteristics of the Internet is its ability to support what Vint Cerf has described as “innovation without permission.” Does the Internet function best without government intervention or are there places where regulation could be helpful? Are there forces at work that could compromise this important benefit that might justify government action? Or could the government provide positive incentives that could spur greater innovation?

• **Social Goods:** The Internet has often been described as a source of many social benefits that transcend the economic interests of individual entities. As the Internet becomes ever more pervasive, is it sufficient to rely on the workings of the free market to generate these benefits or is some action needed to ensure that the public good is served appropriately? Is it legitimate to impose such obligations on service providers who may not meet strict tests for exerting monopoly power?

Each of these issues inevitably involves trade-offs: Should the government intervene in shaping the direction of the digital infrastructure or trust the marketplace to function efficiently? Where should the locus of power be? Is it better to give broad authority to a regulatory agency or should Congress take responsibility for legislating action on these important issues? What should be the balance of power between the federal government and state governments in regulating communications? How should the balance be struck between keeping prices affordable for consumers and ensuring enough revenue to support
dynamic innovation? Should the government be pro-active in identifying goals for communications policy and then crafting regulations to help meet these goals, or should it limit itself to responding to problems or complaints as they arise?

Meet FRED

From all three of these perspectives, it is clear that the existing regulatory framework is less than optimal to meet the (slightly updated) mandate that dates back nearly 80 years “to make available so far as possible to the people of the United States, without discrimination… rapid, efficient, nationwide and worldwide wire and radio [broadband] communications services with adequate facilities at reasonable charges.” While there was a robust debate and some lively disagreements during the discussion of options, there was sufficient alignment among the participants that this report can identify changes that would help bring communications regulation into the 21st century. The following section summarizes these changes.

Although there was considerable discussion about whether the FCC should continue to function as the primary agency responsible for communications regulation, there was no definitive conclusion reached on whether it should be retained or abolished. Former FCC Chair Hundt responded that if the FCC did not currently exist, it is very unlikely that anyone would be able to establish it today. But FTC Chairman Leibowitz cautioned that all alternatives to abolishing the FCC should be tried before a decision is made to eliminate it.

In any event, there was broad agreement that the FCC needed to be “unshackled” from its current mandate that is organized around separate industry and media silos. The conference participants focused on describing the roles and the functions of an entity known as “FRED” that could be either a revamped and reformed version of the FCC or could be an entirely new government entity. (For those who like acronyms, FRED could stand for the Federally Resourced Entity for a Digital Society.) In either case, it would serve as the designated lead agency or department for all communications issues. Compared to the current FCC and NTIA, FRED would be more independent, have greater technical expertise, and would have broader authority about where it can act. Ideally, the agency would have jurisdiction over all
elements of the communications ecosystem. Beyond rulemaking, the agency would have power to coordinate communications policy across the government (i.e., act as a “super agency”) and would supplement formal rulemaking activities with a greater emphasis on convening and coordinating multi-stakeholder groups to collaborate on crafting innovative responses.

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…the FCC need(s) to be “unshackled” from its current mandate that is organized around separate industry and media silos.

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This agency would have a mandate to:

- Ensure and promote everyone’s ability to connect (e.g., by supporting availability, accessibility, affordability, quality and reliability of broadband services) to the broadband Internet;

- Ensure a fair, well-functioning marketplace (guard against bottlenecks, promote innovation);

- Ensure a well-functioning Internet end-to-end (standards, infrastructure, content);

- Ensure the ability to speak;

- Advance other critical social goals (public safety, privacy, security).

Perhaps the most important characteristic of this new agency is a greater degree of independence that would protect it from being captured by parochial interests and that does not, in the words of Norman Ornstein, Resident Scholar at the American Enterprise Institute for Public Policy Research, simply adjudicate among rent seekers. Such an agency should also be insulated from political pressure, which might involve more stringent restrictions on where staff come from and where they are able to go after leaving (i.e., tougher revolving door rules). Chairman Leibowitz commented that an important challenge for him and his agency is to “manage their independence” by maintaining good
relations with the other branches of government. For example, he strives to “be gracious” to members of Congress even if he does not always agree with them. It is also important for his agency to remain transparent to Congress so that the latter are not taken by surprise by any actions.

The conference participants also noted that there is an inherent trade-off between having an agency with a broad, general mandate (like the Federal Trade Commission) that is less vulnerable to industry capture, and a specialized agency with deep expertise in the sector for which it is responsible. It does seem likely that an agency that is organized around industry-specific silos would be more vulnerable to capture by those industries than an agency that has a broad mandate over communications infrastructure and services.

The most notable structural change would be to replace the FCC’s multi-commissioner structure with a single administrator, which echoed earlier proposals, noted above, going back more than a decade. This recommendation was based on a clear consensus expressed during the conference about the potential advantages of having a single leader: a greater degree of technical expertise, greater ability to attract high level talent, the capacity to act more quickly and decisively and the ability to formulate and carry out a consistent set of policies for advancing a coherent agenda.

The administrator should also have the ability to reorganize the agency to respond to changes in the environment without having to get Congressional approval. Participants observed that this type of strong single administrator model has worked well for other regulatory agencies in the U.S. (the FDA, the EPA) and abroad (Ofcom, which is the UK’s equivalent of the FCC). They also noted that the primary rationale for having a multi-member commission—to prevent corruption in handling out licenses and controlling the content of media—was no longer relevant. The agency administrator would be appointed by the President and confirmed by the Senate for a six-year term, and would be subject to continuing Congressional oversight that would serve as a check on its power.

This new agency would perform three key functions: policymaking, enforcement of its rules and adjudication. It would serve as the government’s lead agency for policymaking in communications. Because of its broader mandate, FRED would have the power to address issues related
to the relationships between the evolving communications infrastructure and human rights and the functioning of democracy. It would also be able to address cross-cutting issues across the entire ecosystem, such as mobile health, which currently tend to “fall between the cracks” between agencies, thereby failing to get the attention they deserve.\(^\text{20}\) As for adjudication, the agency would need a speedy and effective dispute resolution system that did not involve long and excessive litigation. Beyond these formal processes, however, the agency should rely to the maximum possible degree on acting through convening stakeholder groups and coordinating rather than coercing action.

In addition to the creation of an agency with consolidated leadership and a broader mandate, several other recommended institutional reforms would allow the government to function more effectively in a complex and rapidly changing communications environment. Three new offices could play important roles that are not well provided for in the current regulatory structure.

First, a Bureau of Information and Technology Statistics (BITS) could be established along the lines of the Bureau of Labor Statistics to collect and disseminate important information about the state of communications in the U.S. This bureau would have no enforcement powers beyond the power to compel external parties to provide it with data as needed. But it would have the ability to develop high-visibility trusted indicators that document the state of the information infrastructure and its relationship to the nation’s economic and social welfare.

Second, a new Office of Outcome Analysis (OOA) would be responsible for evaluating and reporting publically on the extent to which statutory or regulatory goals are being met, thereby creating a new kind of accountability within the government for the results of its actions. Of course, such a function would have to avoid the danger of “teaching to the test”—focusing on what is easiest to measure rather than what is most important to accomplish. One specific task for the OOA could be a triennial review of the National Broadband Plan to assess how well the country is doing in reaching the goals identified in the plan. Another possibility would be for the agency itself to be subject to an annual third-party review, for example, by the Government Accountability Office (GAO), to assess the agency’s overall performance and the success of any policy “experiments” it may undertake.
The third proposed new entity would be a high-level Technology Coordinator who would exert influence primarily through the power to convene groups of stakeholders both inside and outside of government to address urgent issues. In order to ensure that this person has sufficient clout, he or she should be an “empowered” White House Czar or be housed within the Office of Management and Budget, rather than residing inside FRED.

One recommendation for providing the agency with greater independence was for it to have dual headquarters—one in Washington, D.C., and the other well beyond the Beltway, perhaps in a location such as Boulder, Colorado, where the National Telecommunications and Information Administration, the National Institute of Standards and Technology (NIST) and the National Oceanic and Atmospheric Administration (NOAA) already have major research facilities. Norman Ornstein noted that locating outside of the capital could “help a little” with making the agency more independent, but would not wholly insulate it from outside pressures or lobbyists.

Wherever the agency’s offices are located, holding regular field hearings around the country would be an important tool for getting input from sectors that do not have representation in Washington. This kind of outreach would allow agency staff members to engage directly with players without having to go through intermediaries in Washington. More broadly, a high priority for a new agency would be to establish better lines of communication with groups that include citizens and even participants in social networks. Yochai Benkler noted that there are innovative “distributed production models” that make it possible to quickly tap into diverse sources of expertise that could be adapted to government processes.

Another key reform involves removing barriers that make it unnecessarily difficult for regulators to recruit the best qualified candidates for employment, particularly in technical and specialized professions. This would involve changes to government personnel policies—for example, exempting the agency from civil service restrictions on hiring and firing employees and from provisions of the government’s Miscellaneous Receipts Act (MSA) rules to allow the agency to tap outside experts more easily. It would also be important for the agency to have sufficient resources to enable it to compete effectively for top
specialty talent such as engineers and economists. The agency could also benefit by having significant dedicated resources to fund third party policy research and support expanded public participation in its activities.

**FRED in Action.** To demonstrate what a new approach to communications regulation might look like in practice, the Aspen conference participants considered how it might respond to two of the most important policy challenges identified above—facilitating the transition to an all-IP network and dealing with the scarcity of spectrum. These initiatives could demonstrate an open and transparent regulatory process that is better suited to the new network realities.

**Transition to IP:** Under the leadership of the new agency, a rulemaking procedure would set a clear path for the transition from the Public Switched Telephone Network (PSTN) that would be economically sound while continuing to protect the core elements of the public interest. The rulemaking would:

- Set a certain date for the transition after which there would be no further obligation for telcos to continue to invest in or maintain the public switched telephone network;

- Determine which standards and requirements, such as numbering, should continue to apply, how and to whom;

- Review which obligations and benefits (e.g., communications, safety, quality of service, reliability, universal service, disability access) would apply to which entities across the ecosystem; and

- Provide for waivers to extend dates for transition for communities that are not ready based on clearly defined metrics (e.g., penetration of alternative means of access).

Illustrating the magnitude and complexity of this challenge is the question of what would happen to the traditional requirement that telcos act as “carriers of last resort,” ensuring that everyone has access to low-cost telephone service, and whether last miles carriers should continue to be subjected to duty of care and duty of interconnection obligations. Blair Levin suggested that since individual communities
would have the option of seeking a waiver to keep their traditional phone service, the concept of a carrier of last resort could eventually be phased out. Catherine Bohigian, Senior Vice President for Federal Affairs for Cablevision Systems, expressed concern about the danger of prematurely eliminating requirements pertaining to the reliability and safety of telecommunications, noting that VOIP services (in contrast to POTS) are dependent on power and are generally unavailable during blackouts. As the Internet transitions to become “the” network, it is logical that it be subject to greater responsibilities or expectations than the Internet is today. Catherine Sandoval, Commissioner on the California Public Utilities Commission, argued that providing consumers with choices should continue to be a goal of regulation, noting that in some urban locations it is still difficult to get a reliable high-speed wireless connection and that many people are opting to have both wireless and wired service.

On the other hand, Comcast’s Rebecca Arbogast questioned whether maintaining duty of care requirements on providers of broadband communications infrastructure would perpetuate an unnecessarily intrusive regulatory scheme, and whether an approach based on responding to problems or abuses when they occur would be preferable. And Len Cali of AT&T argued that given the complexity and interdependence of the broadband communications infrastructure, regulatory attention should not focus narrowly on the obligations of last mile network operators while excluding other players such as search engine or operating system providers that are also important participants in the Internet ecosystem.

Finally, Dale Hatfield, Senior Fellow at the Silicon Flatirons Center, pointed out that we should be careful not to replace regulation that perpetuates the PSTN with a scheme that does the same for IP, rather than being truly technologically neutral. Any new regulatory scheme that abolishes the obligation to support the PSTN should not create a new obligation to any particular technology.

**Overcoming lack of spectrum:** The biggest barrier to obtaining enough spectrum to meet the rapidly growing demand for wireless communications is the fact that much of the spectrum remains under the control of a variety of government agencies (military and civilian) that have little incentive to give it up even if they are not using it fully. Moreover,
authority for managing the spectrum is currently split between the FCC, which is responsible for commercial spectrum use and use by state and local governments, and NTIA, which is responsible for federal spectrum use.

Beyond exploring options to allow multiple users to share parts of the spectrum, a new approach is needed to accelerate the process of freeing up additional spectrum for innovative uses. Responsibility for government spectrum management could be consolidated into a single administrator (a different person than the administrator running FRED) housed in the powerful Office of Management and Budget. The administrator would:

- Treat spectrum as assigned to the government as a whole rather than to individual departments;
- Set a ten-year goal for the reallocation of a specific percentage of all government-controlled spectrum, and require that a minimum amount of spectrum be reallocated for commercial use each year;
- Create incentives that would encourage early action on returning spectrum, for example, by imposing an administrative “tax” on unused spectrum after a certain date; and
- Establish a substantial bounty program for government employees who propose ways for their agencies to return unused or underused spectrum.

Conclusion

Even though the three Aspen working groups began from different starting points, there was a notable degree of overlap in where they ended up. There was a strong consensus that the current regulatory system is not working well and is likely to become even more dysfunctional as technology continues to evolve. The rationale for maintaining separate regulatory silos for different media grows increasingly tenuous
as they become part of an ever more pervasive broadband Internet infrastructure. And as the rate of change of technology continues to speed up, the slow pace of government action becomes ever more problematic. Bringing about a major paradigm shift to well-established regulatory institutions is not a simple matter, but this challenge requires attention. Now is the time to elevate the discussion of how communications regulation can be brought fully into the 21st century.
Endnotes


The Report


10. While the layers model is a powerful conceptual tool, Whitt points out that it provides an incomplete framing mechanism for policymakers to fully appreciate the richness and complexity of the Internet. In a recent paper, Whitt explains that the layers model can provide the intellectual scaffolding for a more sophisticated technical analysis that incorporates the Net’s other fundamental design attributes—namely, the end-to-end principle, the voluntary interconnection of networks, and agnostic routing protocols. Collectively, these architectural components of the Internet’s design model, when joined to institutional and organizational tools, comprise what Whitt calls a three-dimensional Internet policy framework which can be applied to numerous policy concerns involving the Internet. See Richard Whitt, “A Deference to Protocol: Fashioning a Three-Dimensional Policy Framework for the Internet Age,” Working Draft, December 6, 2012 (earlier version online at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2031186).


16. A current example of a government-led effort to convene multiple parties is the effort by the Commerce Department to convene a privacy initiative that has involved leading a multi-stakeholder process to draft a code of conduct to provide transparency in how companies providing applications and interactive services for mobile devices handle personal data. See www.ntia.doc.gov//other-publication/2012/first-privacy-multistakeholder-meeting-july-12-2012.

17. In 2011, the Institute for the Future conducted an online game for the Office of Naval Research that was designed to solicit novel ideas about combating Somali piracy from a large number of contributors. The so-called Massive Multiplayer Online Wargame Leveraging the Internet (MMOWGLI) engaged more than 800 military personnel and civilians from both the U.S. and abroad for a three-week period, and generated more than 5,000 ideas and suggestions. See Amber Corrin, “A little help from the crowd, please?”, FCW: The Business of Federal Technology, November 9, 2011, http://fcw.com/articles/2011/11/07/qa-jason-tester-institute-for-the-future.aspx.

18. As VOIP services have grown in popularity, the FCC has considered imposing a number of requirements on it, including providing E911, contributing to support for universal access and ensuring access by disabled users.


APPENDIX
A Brief History of Communications Regulation

Richard Adler

“Communications regulation has coevolved with the telecommunications sector.”

- Adaptive Policymaking

The modern era of communications regulation could be said to have begun with the passage of the Communications Act of 1934. Prior to the passage of the Act, radio broadcasting was regulated by the Federal Radio Commission while telephony was regulated by the Interstate Commerce Commission, which also regulated railroads (both industries were classified as common carriers). The Act brought both types of regulation together in a new Federal Communications Commission with a mandate “to make available so far as possible to the people of the United States, without discrimination…rapid, efficient, nationwide and worldwide wire and radio communications services with adequate facilities at reasonable charges.”

In the area of telephony, the FCC focused on overseeing the activities of AT&T, which was regarded as a natural monopoly. The Commission was to carry out tasks such as providing for non-discriminatory access, regulating interstate rates and promoting the goal of universal service, ensuring that every U.S. household had access to affordable basic land-line phone service. Over time, AT&T’s monopoly on long-distance service was challenged by new competitors such as MCI and Sprint. With the break-up of AT&T in 1984, the focus of regulation shifted to encouraging as much competition as possible among different providers. More recently, the Commission has increased its activity within its responsibility for allocating spectrum to and making rules governing mobile telephony.

In the area of broadcasting, the Commission has been responsible for regulating non-governmental uses of the “public airwaves.” This initially involved granting (and then renewing) licenses to broadcasters—first in radio and later in television—for the use of assigned por-
tions of the spectrum in ways that were technically sound. Over time, the FCC expanded the amount of spectrum available for broadcasting by adding the FM band to the original AM radio band and adding UHF to the original VHF television band. The government has had a significant impact on the structure of broadcasting through limits on ownership of radio and TV stations and rules regarding content (e.g., restrictions on obscenity, indecency, gambling and excessive commercialization).

With the arrival of cable television, what began as a means of retransmitting over-the-air TV signals to a wider audience eventually became a significant medium in its own right because of its ability to deliver a broader range of programming. The Commission has helped to shape the evolution of this new alternative for distributing video content, which involved defining cable’s relationship to broadcast television (e.g., must-carry and retransmission consent rules, non-duplication protection).

A Changing Landscape. By the 1990s, the media landscape was dramatically different than it had been a half century earlier when the FCC was established. Technology had made possible much more competition within and between media. As the result of two major antitrust actions, AT&T’s monopoly on telephone service had been, first, diminished, and then essentially ended when the company was broken up in 1984 and the seven “Baby Bells” were created. At the same time, the concept of deregulation was becoming more popular, based on the belief that free markets, left to their own devices, generally do a better job of allocating resources than government can do.

Responding to these changes, in 1996, Congress passed the first comprehensive legislation affecting communications since 1934. The Telecommunications Act of 1996, which has been described as “a radical step to restructure U.S. telecommunications markets,” was strongly deregulatory in spirit. The vision underlying the act was that local telephone, long distance, cable and potentially wireless providers would all compete in each other’s markets, producing benefits for consumers and largely eliminating the need for regulation.

The Act abolished cross-market barriers that prohibited dominant players from one communications industry, such as telephony, from providing services in other sectors, such as cable. The Act also encour-
aged the creation of so-called Competitive Local Exchange Carriers (CLECs) to compete with the incumbent phone companies (ILECs) by requiring the latter to lease parts of their networks to potential competitors “at cost.” Congress held out interLATA (i.e., non-local calling) entry as a reward for the ILECs’ adherence to interconnection, unbundling and resale obligations designed to facilitate competition in local service. As one Congressman summarized the bargain: “Once the [Bell Operating Companies] open their local exchange networks to competition, [they] are free to compete in the long distance and manufacturing markets.” The legislation produced a burst of investment and competitive activity, but much of it collapsed in the financial meltdown of 2001-02. (Ironically, the strongest competition for traditional wireline phone service came not from new wireline companies but from wireless service which is dominated by the ILECs themselves.)

In the area of broadcasting, the Act was also distinctly deregulatory. It liberalized the process of licensing, increased the limit on television station ownership and completely abolished the limit on the (domestic) ownership of radio stations. The one area where the 1996 Act strengthened regulation was in Title V, the Communications Decency Act, which prohibited the transmission of indecent or obscene material over the Internet (later overturned by the Supreme Court), and required the television industry develop a “V Chip” and a program ratings scheme to enable parents to limit children’s access to content they considered inappropriate. Passage of the Broadcast Decency Enforcement Act of 2005 confirmed the role of government in this area by substantially increasing the maximum fine the FCC can impose on broadcasters for airing content deemed indecent.

**Dealing with Data.** One mega-trend that has dramatically changed the communications landscape is the rise of digital computing and digital communications, and, especially, the convergence of the two. Regulators and lawmakers have been struggling for the past half century to develop rational approaches to accommodate this transformative trend.

The FCC first recognized this development in the late 1960s, when it launched the first of three so-called Computer Inquiries intended to explore the interrelationships of computing and communications and their implications for regulation. In the first Inquiry, which
concluded in 1971, the FCC attempted to distinguish between “communication” services, which involved computers only to control the switching of messages but not to alter the content of those messages, and “data processing” services, which involved acting on the content of messages through such functions as storing, sorting, retrieving or calculating. The FCC decided that the former type of service should continue to be regulated, while the latter should remain unregulated except for restrictions on the ability of incumbents such as AT&T to offer them. However, the Commission soon found that many services were “hybrids” that combined elements of the two types of functions, thereby complicating its effort to distinguish between them. The Commission’s second Computer Inquiry, concluding in 1980, attempted to restore order by proposing a distinction between “basic” services that only involve message transmission, and “enhanced services” that include some degree of computer processing and establishing different regulatory requirements for each type of service. The third and final Computer Inquiry, conducted in the mid-1980s, focused on creating a set of provisions that would allow local exchange carriers (the newly created “Baby Bells”) to provide enhanced services without competing unfairly with other entities that did not own similar network facilities.5

The 1996 Telecommunications Act enshrined a version of the FCC’s “basic/enhanced” dichotomy into law by distinguishing between “telecommunications” and “information services,” with only the former subject to regulation. As the Internet began to grow in the 1990s, the FCC generally refrained from attempting to regulate this new medium. When many companies (such as AOL) began offering dial-up Internet access over the telephone network, it was treated as an unregulated information service. Furthermore, incumbent telephone companies were required to provide capacity on a common carrier basis to Internet Service Providers (ISPs) and were prevented from imposing per-minute access charges on them, which allowed ISPs to offer flat-rate pricing.

With the rise over the past decade of broadband Internet access provided directly by telephone companies and cable television operators, the FCC was forced to determine the status of a service that integrated pure transmission and computer processing functions. In 2002, the agency classified broadband Internet access as an information service,
freeing telephone and cable providers from legacy regulatory obligations in its provision.⁶

In a 2008 complaint proceeding against Comcast and a 2010 rulemaking, the FCC attempted to impose a set of broad “open Internet” conditions on broadband Internet access under its general Title I authority.⁷ The Commission insisted that it did not intend “to regulate Internet content or applications,” but rather “to clarify high-level, flexible rules of the road for broadband to ensure that no one—not the government and not the companies that provide broadband service—can restrict innovation on the Internet.” The Comcast decision was overturned by the courts, and the subsequent rulemaking is currently being challenged in court.

The FCC Today. Despite many far-reaching changes in technology and in the political and economic climate, the Federal Communications Commission has survived and continues to operate much as it has since it was created nearly 80 years ago. The FCC is now led by five Commissioners nominated by the President and confirmed by the Senate for five year terms. No more than three of the Commissioners can be from the same political party, and one Commissioner is designated by the President to serve as Chairman.

Operationally, the Commission is still organized in ways that are based on distinctions among different types of communications media. The FCC is made up of a series of bureaus that includes a Media Bureau that is responsible for regulating “AM, FM radio and television broadcast stations, as well as cable television and satellite services;” a Wireline Bureau that is focused on “rules and policies concerning telephone companies that provide … telecommunications services to the public through the use of wire-based transmission facilities (i.e., corded/cordless telephones);” and a Wireless Competition Bureau that “oversees cellular and PCS phones, pagers and two-way radios [as well as] the use of radio spectrum [by] businesses, aircraft and ship operators, and individuals.”⁸

The question now is whether, in an age of convergence and continuous change due to disruptive technologies, this scheme still makes sense.


3. The first major anti-trust action, United States v. Western Electric, settled in 1956, largely ended the company’s monopoly on telephone equipment while the company agreed not to enter the computer business. The second action, United States v. AT&T, settled with a consent decree in 1984, resulted in the break-up of the Bell System, with the splitting off from AT&T of seven regional operating companies (the “Baby Bells”) that provided local telephone service in different parts of the country, while AT&T continued to provide long distance service. Today, of course, these eight entities have been largely consolidated back into two big companies – AT&T and Verizon – which provide a full range of telecommunications services.


7. The FCC’s three “Open Internet” rules are: 1) Transparency (broadband providers must disclose information regarding their network management practices, performance and the commercial terms of their broadband service); 2) No blocking (broadband providers may not block lawful content, applications, services or non-harmful devices); and 3) No unreasonable discrimination (providers may not discriminate in transmitting lawful network traffic). Open Internet, Federal Communications Commission, www.fcc.gov/topic/open-internet.

8. Other bureaus and offices at the FCC are responsible for public safety and homeland security issues, international matters, enforcement, policy analysis, diversity, consumer outreach and engineering and technical matters. For a more detailed description of the Commission’s structure, see http://transition.fcc.gov/aboutus.html.
The Twenty-Seventh Annual Conference on Communications Policy

Rethinking Communications Regulation

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About the Aspen Institute
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The Communications and Society Program is an active venue for framing policies and developing recommendations in the information and communications fields. We provide a multi-disciplinary space where veteran and emerging decision-makers can develop new approaches and suggestions for communications policy. The Program enables global leaders and experts to explore new concepts, exchange insights, develop meaningful networks, and find personal growth, all for the betterment of society.

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The Program’s Executive Director is Charles M. Firestone. He has served in this capacity since 1989 and also as Executive Vice President of the Aspen Institute. Prior to joining the Aspen Institute, Mr. Firestone was a communications attorney and law professor who has argued cases before the United States Supreme Court. He is a former director of the UCLA Communications Law Program, first president of the Los Angeles Board of Telecommunications Commissioners, and an appellate attorney for the U.S. Federal Communications Commission.
Previous Publications from the Aspen Institute Communications Policy Project

The Reallocation Imperative: A New Vision for Spectrum Policy, by Preston Marshall

The report resulting from the 2011 Aspen Institute Roundtable on Spectrum Policy addresses new ways of allocating, clearing, using and/or sharing spectrum controlled by private parties and government agencies. Written by rapporteur Preston Marshall, the report attempts to step back and establish a broad vision for reallocating spectrum in the United States in the public interest, discussing new approaches that will facilitate more effective and efficient spectrum use. A number of recommendations are laid forth to guide future spectrum policy development, Congressional actions, and technology explorations. 2012, 54 pages, ISBN Paper: 0-89843-570-6, $12.00


Given the current growth and importance of the Internet, the report of the 2011 Aspen Institute Conference on Communications Policy titled “Updating Rules of the Digital Road: Privacy, Security, Intellectual Property,” highlights the elements that will allow for greater use of broadband as the common medium: security, privacy and intellectual property regulation. Written by rapporteur Richard Adler, the report explores a range of threats that plague the use of today’s communications media and provides a series of recommendations which aim to ensure that users’ communications are secure, private and protected. 2012, 70 pages, ISBN Paper: 0-89843-563-3, $12.00

Spectrum for the Next Generation of Wireless, by Mark MacCarthy

The report resulting from the 2010 Aspen Institute Roundtable on Spectrum Policy explores possible sources of spectrum, looking specifically at incentives or other measures to assure that spectrum finds its
highest and best use. It includes a number of recommendations, both private and federal, of where and how spectrum can be repurposed for wireless use, including a discussion of incentive auctions, overlay auctions, flexible use, a spectrum innovation fund and spectrum fees, among other strategies. 2011, 68 pages, ISBN Paper: 0-89843-551-X, $12.00

Rewriting Broadband Regulation, by David Bollier

The report of the 25th Annual Aspen Institute Conference on Communications Policy in Aspen, Colorado, considers how the United States should reform its broadband regulatory system. Participants looked at international models and examples, and examined how data and communications should be protected in the international arena. The resulting report explores a range of policies for U.S. broadband regulation, many of them derivative of the National Broadband Plan adopted by the Federal Communications Commission only a few months before the conference. For the most part, conference participants refined policies and nuances of a rather familiar regulatory terrain.

Participants also ventured into new and interesting territory with the novel concept of “digital embassies.” They saw this as a way of dealing with jurisdictional issues associated with the treatment and protection of data in the cloud, i.e., data that is provided in one country but stored or manipulated in another. The concept is that the data would be treated throughout as if it were in a kind of virtual embassy, where the citizenship of the data (i.e., legal treatment) goes along with the data. This policy seed has since been cultivated in various other regulatory environments. 2011, 52 pages, ISBN Paper: 0-89843-548-X, $12.00

Scenarios for a National Broadband Policy, by David Bollier

The report of the 24th Annual Aspen Institute Conference on Communications Policy in Aspen, Colorado, captures the scenario building process that participants used to map four imaginary scenarios of how the economy and society might evolve in the future, and the implications for broadband policy. It identifies how certain trends—economic, political, cultural, and technological—might require specific types of government policy intervention or action. 2010, 52 pages, ISBN Paper: 0-89843-517-X, $12.00

The report resulting from the 2009 Aspen Institute Roundtable on Spectrum Policy explores innovative ways to respond to the projections of exponential growth in the demand for wireless services and additional spectrum. In addition to discussing spectrum reallocations, improved receivers, shared use and secondary markets as important components for meeting demand, the report also examines opportunities for changes in network architecture, such as shifting the mix between fiber and wireless. 2010, 58 pages, ISBN Paper: 0-89843-520-X, $12.00

ICT: The 21st Century Transitional Initiative, by Simon Wilkie

The report of the 23rd Annual Aspen Institute Conference on Communications Policy in Aspen, Colorado addresses how the United States can leverage information and communications technologies (ICT) to help stimulate the economy and establish long-term economic growth. The report, written by Roundtable rapporteur Simon Wilkie, details the Aspen Plan, as developed in the summer of 2008, prior to the economic meltdown beginning in September 2008 and prior to the election of Barack Obama as President. The Plan recommends how the Federal Government—through executive leadership, government services and investment—can leverage ICTs to serve the double bottom line of stimulating the economy and serving crucial social needs such as energy efficiency and environmental stewardship. 2009, 80 pages, ISBN Paper: 0-89843-500-5, $12.00

A Framework for a National Broadband Policy, by Philip J. Weiser

While the importance of broadband access to functioning modern society is now clear, millions of Americans remain unconnected, and Washington has not yet presented any clear plan for fixing the problem.

Rethinking Communications Regulation

The Future of Video: New Approaches to Communications Regulation, by Philip J. Weiser

As the converged worlds of telecommunications and information are changing the way most Americans receive and relate to video entertainment and information, the regulatory regimes governing their delivery have not changed in tune with the times. These changes raise several crucial questions: Is there a comprehensive way to consider the next generation of video delivery? What needs to change to bring about a regulatory regime appropriate to the new world of video? The report of the 21st Annual Conference on Communications Policy in Aspen, Colorado, outlines a series of important issues related to the emergence of a new video marketplace based on the promise of Internet technology and offers recommendations for guiding it into the years ahead. 2006, 70 pages, ISBN Paper: 0-89843-458-0, $12.00

Clearing the Air: Convergence and the Safety Enterprise, by Philip J. Weiser

The report describes the communications problems facing the safety enterprise community and their potential solutions. The report offers several steps toward a solution, focusing on integrating communications across the safety sector on an Internet-Protocol-based backbone network, which could include existing radio systems and thus make systems more dependable during emergencies and reduce costs by taking advantage of economies of scale. The conference participants stressed that the greatest barriers to these advances were not due to lagging technology but to cultural reluctance in adopting recent advances. Writes Weiser, “The public safety community should migrate away from its traditional reliance on specialized equipment and embrace an integrated broadband infrastructure that will leverage technological innovations routinely being used in commercial sectors and the military.” 2006, 55 pages, ISBN Paper: 0-89843-4, $12.00

Reforming Telecommunications Regulation, by Robert M. Entman

The report of the 19th Annual Aspen Institute Conference on Telecommunications Policy describes how the telecommunications regulatory regime in the United States will need to change as a result of technological advances and competition among broadband digital subscriber line (DSL), cable modems, and other players such as wire-
less broadband providers. The report proposes major revisions of the Communications Act and FCC regulations and suggests an interim transitional scheme toward ultimate deregulation of basic telecommunications, revising the current method for universal service subsidies, and changing the way regulators look at rural communications. 2005, 47 pages, ISBN Paper: 0-89843-428-9, $12.00

*Challenging the Theology of Spectrum: Policy Reformation Ahead,* by Robert M. Entman

This report examines the theology of spectrum—that is, the assumptions and mythology surrounding its management and use. The report looks at how new technologies affecting spectrum, such as software-defined radio, can challenge the conventional wisdom about how spectrum should be managed. Such innovations allow for access to unused frequency space or time on frequencies that are otherwise licensed to an exclusive user. 2004, 43 pages, ISBN Paper: 0-89843-420-3, $12.00

*Spectrum and Network Policy for Next Generation Telecommunications,* by Robert M. Entman

The report of the 18th Annual Aspen Institute Conference on Telecommunications Policy offers policy alternatives in both spectrum and network policy to achieve new gains for the telecommunications field. The first essay suggests new management approaches to encourage more efficient uses of spectrum while preserving the commitment to reliability of service and public safety values. The second essay debates the competitive structure of the telecommunications industry and its implications for building next-generation networks (NGN) and identifies three areas to encourage optimal development of the NGN: operate the NGN on a price-deregulated basis and begin to address access regulation issues, secure the intellectual property rights of content suppliers, and adjust the system of subsidized pricing to bring about competitively neutral pricing. 2004, 92 pages, ISBN Paper: 0-89843-394-0, $12.00

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