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The 1996 Telecommunications Act and the Broadband Industry Duopoly

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Abstract

Development of the broadband Internet industry currently is regulated by the Telecommunications Act of 1996 with a pro-competition and deregulatory approach. However, the U.S. Supreme Court's interpretation of this act has led to an anti-competitive 'cable-phone' duopoly in the broadband industry. This paper traces the development of the telecommunications industry prior to and after the 1996 Act. It concludes that open access and network unbundling mandates, as well as municipal-owned networks are crucial to promote robust market competition and broadband innovation.

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Executive Summary

Digital convergence has rapidly expanded consumers' communication options, such as email, wireless telephone service, and video conferencing. Proliferation of the Internet and wireless mobile phone services has rendered distance and geographical boundaries irrelevant. Broadband Internet (high-capacity Internet)¹, which transmits bandwidth-heavy data, voice and video applications seamlessly, is gradually displacing traditional telephone and broadcast media as the most common communications medium in the United States.

The Obama Administration and the federal government were unambiguous in their vision to establish broadband Internet as the United States' most dominant communications network. President Obama declared that his administration would "make America's nationwide broadband infrastructure the world's most powerful platform for economic growth and prosperity" (White House Press Release 2010). Furthermore, Congress inserted specific broadband provisions in the American Recovery and Reinvestment Act of 2009 to highlight the importance of broadband infrastructure to the nation's long-term economic benefits. The Federal Communications Commission (FCC) also released the National Broadband Plan on March 2010 with ambitious goals, such as providing affordable broadband Internet to a hundred million homes by 2020 (FCC 2010, 25).

Despite the federal government's ambitions, the United States now ranks twenty-third globally in broadband development (Strategy Analytics 2011). In the 2011 FCC Broadband Progress Report, the agency concluded, "broadband is not being deployed to all Americans in a reasonable and timely fashion" (FCC 2011, 27).

The Telecommunications Act of 1996 (the 1996 Act) currently governs the broadband Internet industry. The purpose of the 1996 Act was to create a competitive and vibrant free market environment in which the entire telecommunications industry could thrive. Under the deregulatory framework of the 1996 Act, factors such as price, output, and investment decisions are free to respond to market signals. Private firms were also given greater autonomy to set prices, enter new markets, exploit new technologies, and make acquisitions. Despite Congress' deregulatory efforts, the anticipated competition in the broadband industry has not occurred.

Gene Kimmelman, the Vice President of Federal and International Affairs for Consumers Union, described the current broadband Internet market as a "cozy" duopoly, where most consumers have two choices of service providers: the local telephone company or the cable company (Kimmelman et al. 2006, 512). The U.S. Supreme Court restricted the FCC's ability to regulate broadband providers based on its interpretation of the Telecommunications Act of 1996. As a result, the top five Internet service providers (ISPs) now have a combined market share of 61 percent (Stat Owl 2012). FCC Commissioner Mignon Clyburn expressed her concern that "our fears about whether meaningful competition exists should grow" when broadband

subscription costs rise across the country and there are a limited number of firms in the industry (FCC 2010).

The following sections will trace the broadband development in the United States, and explain the various business and legal barriers that have undermined the 1996 Act. Based on evidence from the current broadband development, the paper recommends open infrastructure access and municipal-provided networks as policies that would advance the country's broadband interest in the corporate-controlled broadband industry.

The U.S. Telecommunications Industry before 1996

The American telecommunications industry evolved predominantly under monopoly conditions, where American Telephone and Telegraph Co. (AT&T) and its affiliates achieved unified national control over telephone services. AT&T constructed the Long Lines, America's first long-distance telephone network, to become the only interstate telephone carrier (Nuechterlein & Weiser 2005, 5). Because hardware use by telephone exchanges in most cities operated under American Bell's licenses, AT&T acquired the company to form the Bell System, and maintained its own equipment-manufacturing arm, Western Electric (Nuechterlein & Weiser 2005, 5). In small local phone service markets not controlled by AT&T, such as those in rural areas, the firm coerced non-affiliated companies into joining the Bell System by denying use of AT&T's long-distance network (Nuechterlein & Weiser 2005, 5). Without interconnection rights to the Long Lines, independent companies could not extend their phone services beyond their respective local serving areas, thereby limiting service value. By 1913, AT&T and the Bell System secured market dominance through extensive physical infrastructure and coercive anticompetitive business barriers.²

The prevailing doctrine of the early 20th century regarded the telecommunications sector as a natural monopoly (Nuechterlein & Weiser 2005, 11). In order to compete with the dominant firm within each locality, new entrants in a local exchange market had to incur prohibitive fixed costs to build their own, redundant infrastructure. Furthermore, the marginal and average costs to deliver phone service to the thousandth user in an existing network would be lower than to the tenth user in a newly constructed network (Nuechterlein & Weiser 2005, 12). Hence, competition was deemed undesirable because a single firm could serve the entire market at lower overall cost per subscriber than could multiple firms.

Congress enacted the Communications Act of 1934 (the 1934 Act) after AT&T achieved its national control of the market for telephone equipment, the market for long-distance service, and most local exchange markets (Nuechterlein & Weiser 2005, 55).³ The 1934 Act declared federal policies to provide universal access to wired phone communications service with "adequate facilities at reasonable charges," and established the FCC as the regulatory agency (47 U.S.C. § 151). Because of AT&T's lobbying efforts, the federal government legally sanctioned

AT&T's monopoly in exchange for setting prices at reasonable rates of return (Nuechterlein & Weiser 2005, 14).⁴ Even though the 1934 Act did not bar competition, the FCC interpreted its mandate to be the exclusion of competition and regulated AT&T as a telecommunications monopolist (Lemley & McGowan 1998, 549). However, the FCC failed to enforce AT&T to act as a common carrier and to discipline its pricing. AT&T's monopolist position encountered criticism after 1965, as potential competitors such as MCI and Sprint were excluded from entering the long-distance telephone market (Nuechterlein & Weiser 2005, 19). The U.S. Court of Appeals for the District of Columbia even accused the FCC of "propagat[ing] monopoly for monopoly's sake" in a 1977 court ruling (*MCI* 561 F.2d 365 at 380).

On November 20, 1974, the Justice Department initiated antitrust proceedings against AT&T.⁵ In light of charges against the firm, AT&T agreed to a divestiture settlement in 1982 that would break up its long-distance and local phone business operations (Atkin et al. 2006, 81-82). AT&T completed its divestiture two years later by merging its local operating units into seven Regional Bell Operating Companies (RBOCs: Bell Atlantic, NYNEX, Bell South, Southwestern Bell, Pacific Telsis, U.S. West, and Ameritech). Each RBOC comprised of a collection of local phone companies that were part of AT&T's Bell System, and held exclusive franchise in its respective region. Accordingly, AT&T was not allowed to deliver local telephone service in competition with the RBOCs. Likewise, the RBOCs were barred from providing long-distance services in their territories or manufacturing telecommunication equipment. The end of AT&T's national monopoly reportedly increased residential telephone service adoption rates from 91.4 percent in 1984 to 93.4 percent in 1991 (Noam 1993, 440). Emergence of MCI and Sprint as long-distance telephone carriers with their own network infrastructure also plummeted long-distance telephone charges by 45 percent (Noam 1993, 443-444).

Following the breakup of AT&T's operations and its waning influence on policy makers, there was an increasing belief that competition could discipline the pricing and the quality of telecommunication services more efficiently than could a legally sanctioned monopoly. By the 1990s, the telecommunications industry was no longer regarded as a natural monopoly, while policy makers and the industry alike deemed the 1934 Act as a hindrance to continued progress in the telecommunications sector. Consequently, the 104th Congress enacted the 1996 Act to encourage vigorous competition in the telecommunications sector, and to require that incumbent firms provide equal access to their infrastructures for carriers in other segments of the industry.

Key Competitive Provisions of the 1996 Act

The 1996 Act was the first major revision of the U.S. telecommunications law since the 1934 Act. For the first time, Congress codified the notion that telecommunications services should thrive in a competitive environment. Title V, Section 230(b) of the 1996 Act explicitly states that it is the policy of the United States "to preserve the vibrant and competitive free market that presently

exists for the Internet and other interactive computer services, unfettered by federal or state regulations” (47 U.S.C. §230(b)). Except for AT&T and the ROBCs, the 1996 Act allowed local and long-distance phone companies to enter each other’s market. Furthermore, the 1996 Act eased restrictions on cross-media competitions between cable and telephony, where phone companies could provide video delivery services within their service area, while cable companies could offer telephone services (Atkin et al. 2006, 82).⁶

A key feature of the 1996 Act was to level the playing field between dominant incumbent local exchange carriers (ILECs) and competitive local exchange carriers (CLECs) in the local telecommunications markets. ILECs are pre-existing telephone monopolists in each local service area, primarily the seven ROBCs, that control the local loop – the connection from the home or business to the local switch.⁷ Conversely, CLECs are relatively new entrants into the local telecommunications markets. For example, the ILECs in Kentucky are AT&T Kentucky and Bell South Communications (FCC 2011, 2).

Prior to the 1996 Act, new market entrants faced formidable capital cost of entry. As the Supreme Court explained, “a new, competitive LEC could not compete with an incumbent carrier without basically replicating the incumbent’s entire network” (*Talk America* 131 S. Ct. 2254 at 2258). Accordingly, Section 251 necessitates all ILECs to provide their competitors “just, reasonable, and nondiscriminatory” access to their infrastructure (47 U.S.C. §251). This requirement allows CLECs to lease parts of an ILEC’s network on an unbundled basis. The FCC believed that the local loop unbundling (LLU) mandate would enable entrants to offer comparable services to local subscribers when they have not yet rolled out alternative infrastructures (FCC 2011, 2-3).

The LLU mandate was designed to incentivize the RBOCs to offer their competitors network access via interconnection and wholesale buying. The RBOCs that satisfied conditions set forth in the 1996 Act were granted authority from the FCC to expand into previously prohibited operation fronts, such as long-distance telephone service and equipment manufacturing (FCC 2011, 4-5).

The 104th Congress also recognized the threats posed by state barriers to restrain competition, and enacted Section 253 of the 1996 Act to promote uninhibited nationwide competition in telecommunications services despite inconsistent state and local laws. In 1996, more than 30 states had not adopted laws providing for local competition, and a majority of those states had provisions that specifically limited entry into local telecommunications markets (FCC 1996, 4). Thus, Section 253 of the 1996 Act authorizes the Commission to strike down any existing or future enforcement of such entry barriers (FCC 1996, 4). Specifically, Section 253(a) states that “[n]o State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service” (47 U.S.C. §253). Without this provision, states could

legally sanction monopolies in each franchise area, and entrepreneurs who sunk new cables and installed new switches could be legally excluded from the local service market.

With respect to Section 251 and Section 253 of the 1996 Act, Attorney Donna Lampert noted that the 1996 Act aimed to tackle incumbent market practices that would otherwise “kill competitors without some oversight” (Lampert 2006, 527). Based on the efforts to facilitate the telecommunications industry’s emergence from a former monopoly, Lampert hailed that the 1996 Act “remains a milestone in communications legislation and... the model for many nations who have adopted analogue to many of the key competition-oriented [pricing] provisions” (Lampert 2006, 522).

Anticompetitive Business and Legal Barriers since the 1996 Act

There was a widespread belief that competition would thrive after passage of the 1996 Act. The Wall Street Journal summed up the assumptions of the 1996 Act: “By sweeping away decades of regulation, Washington thought it was paving the way for a free for all among the [RBOCs], long-distance carriers, cable operators and other telecommunications providers” (Gruley et al. 1998). Instead, there was a series of mergers not anticipated by Congress nor prohibited by the 1996 Act, where major telecommunications companies expanded their respective market share, such as the SBC-AT&T and the Verizon-MCI mergers⁸. Table 1 summarizes the major domestic mergers since 1996.

Table 1. Major domestic telecommunication acquisitions since 1996

Target	Acquirer	Value in billions	Date Announced
Pacific Telesis	SBC Communications	\$22.4	4/96
NYNEX	Bell Atlantic	\$30.8	4/96
MCI Communications	WorldCom	\$43.4	10/97
Ameritech	SBC Communication	\$72.4	5/98
TCI Cable	AT&T	\$30.0	6/98
GTE	Bell Atlantic	\$71.3	7/98
AirTouch Communications	Vodafone Group	\$65.9	1/99
MediaOne	AT&T Cable	\$58.0	6/99
US West	Quest Communication	\$48.5	6/99
Time Warner	America Online	\$103.5	1/01
AT&T Cable	Comcast	\$47.0	12/01
Cingular Wireless	AT&T Wireless	\$41.0	8/04
AT&T	SBC Communications	\$16.0	1/05
Verizon	MCI/WorldCom	\$6.8	2/05
Bell South	AT&T*	\$86	3/06

Source: Atkin et al. (2006, 85) and Julie Vorman (2006). Note: SBC Communications was one of the seven RBOCs after 1982 divestiture. The company renamed itself to AT&T after acquiring its parent company in 2005.

Incumbent Market Practices

Professor Eli Noam, Director of the Columbia Institute for Tele-Information, conducted an empirical study on post-1996 market concentration for both the telecommunications and the mass media industries. He observed that the telecommunications sector became more concentrated after 1996, and concluded that companies had adopted “defensive moves” such as mergers in response to the 1996 Act to re-establish their markets (Noam 2006, 549).

Kimmelman et al. (2006, 513) observed other business practices that enabled cable and telecommunications giants to expand their service territories. Most notably, incumbent ISPs tend to offer bundled services at a discounted price to attract potential consumers. Until recently, Internet access was available only through packaged services: digital subscriber line (DSL) tied to local phone service, or cable modem service tied to cable video package. Companies believed that bundling would discourage consumers from migrating to competitors, such as satellite companies, that might not offer the complete collection of services (Nelson 2005, 59). At present, ISPs still offer bundled services at more attractive prices than stand-alone Internet service. For example, the Comcast XFINITY Double Play package (cable television and 15 Mbps Internet service) and its XFINITY Triple Play package (television, 15Mbps Internet and voice service) are available for \$69.99 per month and \$99 per month, respectively (Comcast 2012). In contrast, Comcast’s basic broadband service for 6Mbps connection speed, the Performance Starter, now costs \$49.95 per month (Comcast 2012). Because of these bundled services, consumers do not have many attractively priced options that they can select based on their specific needs. Subsequently, service deployment is not dictated by consumers’ choice as per the free market ideology, but instead by corporate firms’ plan to maximize their profit.

In 2005, the FCC eliminated the LLU obligation in the broadband Internet market (FCC 2005).⁹ Previously, incumbent telecommunications carriers criticized in repetitive in-court challenges that the unbundling mandate dampened their incentives to upgrade their networks, to extend broadband deployment and to enhance their services (Cambini et. al 2009, 561). The incumbents also challenged that the mandate discouraged new entrants from constructing their own networks and moving from leased lines, causing the U.S. Court of Appeals to send the entire unbundling and line-sharing mandate back to the FCC for reconsideration (Cambini et. al 2009, 561). Without the facilities sharing mandate, competitors now face heavy initial sunk costs to have their own networks ready to compete with incumbent companies. The prohibitive capital cost thus discourages new ISPs from entering the broadband Internet market and competing with established firms.

Supreme Court 2004-2005 Trilogy

Besides incumbent market practices that discourage market entrants, three notable Supreme Court decisions have ruled in favor of incumbent private firms by denying municipalities and

anticompetitive intentions in the 1996 Act. As a result, the rulings severely dented the market competition that Congress envisaged to achieve via the 1996 Act.

1) *Nixon v. Missouri Municipal League (2004)*

Section 253(a) of the 1996 Act states that no state action “may prohibit... any entity to provide any interstate or intrastate telecommunications service.” Based on Section 253’s preemption, the Missouri Municipal League, a group of local governments in Missouri, challenged a state law (Mo. Ann. Stat. §392.410(7)) that restrained municipalities from providing telecommunication services. The state law was enacted in 1997 following concerns by Southwestern Bell, Missouri’s phone incumbent, that municipalities could gain unfair market advantages through abuses of their regulatory authority. Upon Missouri’s and the FCC’s appeal, the Supreme Court construed that Section 253’s anticompetitive protection only extended to “any private entity,” and did not include municipal telecommunications carriers (*Nixon* 541 U.S. 125 at 133). This ruling enables state actions to preclude municipal entities but not private firms from providing interstate or intrastate telecommunications services. As a result, the broadband industry is now heavily reliant on private phone and cable companies as telecommunications carriers and reinforces their dominance.

2) *Verizon Communications LLC v. Law Offices of Curtis v. Trinko, LLP (2004)*

Section 251 of the 1996 Act imposes a non-discriminatory obligation upon ILECs to share their telephone networks with competitors. Verizon, the incumbent company of New York, signed an interconnection agreement with AT&T to share the local telephone network. Trinko, a law firm and AT&T customer, alleged that Verizon refused AT&T equal access to its local network, thereby violating both the 1996 Act and §2 of the Sherman Act. The Supreme Court held that “Verizon’s alleged insufficient assistance in the provision of service to rivals is not a recognized antitrust claim,” and added that “[t]he 1996 Act’s extensive provision for access makes it unnecessary to impose a judicial doctrine of forced access. (*Trinko* 540 U.S. 398 at 410, 411). This ruling impedes subsequent potential antitrust claims that market entrants could bring against cable and phone monopolists, and even undermines the intended interrelationship between the antitrust law and the 1996 Act. In reference to the *Trinko* case, Representative James Sensenbrenner criticized that the Supreme Court’s decision “has done violence to remedial antitrust enforcement and competitive gains in the telecommunications marketplace” (James Sensenbrenner, Jr. 2006).

3) *National Cable and Telecommunications Association v. Brand X Internet Services (2005)*

Title II of the 1934 Act, which was amended in 1996, subjected ‘telecommunications service’ providers to mandatory common-carrier regulation. Under this regulation, telecommunications service providers must serve all customers without discrimination. In March 2002, the FCC exempted cable broadband from the common-carrier regulation and network access requirements by reclassifying cable broadband as an ‘information service.’ Under the 1996 Act, an

information service is the “offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications” (47 U.S.C. §153). The statutory definitions for ‘telecommunications service’ and ‘information service’ were based on the functions instead of the facilities used to provide the service. The FCC interpreted this to mean that cable broadband service does not offer ‘telecommunications’ to anyone, it merely uses telecommunications to provide end-users with broadband Internet access over a telephone line (FCC 2002).

Brand X, a small ISP in California, challenged the FCC’s interpretation. The firm argued for cable ISPs to be reclassified as ‘telecommunications service’ providers to allow competing firms use cable companies’ telecommunications components. The Supreme Court ruled that the FCC reasonably construed the 1996 Act to exclude cable ISPs from ‘telecommunications service’ providers, and deferred interpretation of the 1996 Act back to the FCC (*Brand X* 545 U.S. 967 at 1000). In October 2005, the FCC maintained their interpretation that cable broadband service constitutes an ‘information service’ (FCC 2005).

Most recently, in April 2010, the U.S. Court of Appeals for the District of Columbia. ruled that the FCC did not have “authority to regulate an Internet service provider’s network management practices” (*Comcast* 600 F.3d 642 at 644). The Court found that the FCC lacked the legal authority to sanction Comcast for blocking certain uses of its Internet access services, and concluded that “the Commission has failed to tie its assertion of ancillary authority over Comcast’s Internet service to any ‘statutorily mandated responsibility’” (*Comcast* 600 F.3d 642 at 661). This decision essentially dealt a serious blow to FCC’s jurisdictional power to govern private broadband companies and enforce the 1996 Act.

These critical Court rulings have significantly subverted the 1996 Act’s key provisions and the FCC’s regulatory role, which in turn undercut the professed goals of market competition and broadband innovation. Though open access rules would make municipal broadband providers an important counterweight to broadband monopolies and duopolies, the Supreme Court’s rulings instead caused state laws that impeded municipal entry to be more anticompetitive. Moreover, the *Trinko* and the *Brand X* cases enable corporate cable companies and telephone companies to exclude upstart competitors and to establish a broadband duopoly. This in turn frustrates any hope for universal broadband access because the duopoly has led to rising prices and decreasing innovative outputs. In addition to the removal of network unbundling obligation, the barrier of entry remains high to entrant firms. Due to the absence of an effective challenge from independent broadband providers, American consumers may not benefit from the power of the Information Age.

Federal Role in the Post-1996 Broadband Development

Congress recognized the potential of broadband Internet service to grow into a significant communications medium at the passage of the 1996 Act. Hence, Congress directed the FCC in Section 706 of the 1996 Act to deploy “advanced telecommunications capability to all Americans” on a “reasonable and timely basis” (47 U.S.C. §706). Section 706 complements Section 254, the statutory mandate to offer high quality universal service in all U.S. regions at “just, reasonable, and affordable rates” (47 U.S.C. §254). These two provisions were designed to broaden the deployment of broadband technologies, and to stimulate investment and innovation in broadband technologies and services.

Since the 1996 Act, the 110th Congress reiterated the importance of broadband Internet development in the American Recovery and Reinvestment Act of 2009. Subsequently, the FCC released the National Broadband Plan on March 16, 2010 to highlight the agency’s priority to establish high-speed Internet as the country’s most dominant communication network.

The American Recovery and Reinvestment Act of 2009

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act (the Recovery Act) into law as an unprecedented effort to revitalize the U.S. economy and to modernize the nation’s infrastructure. Accordingly, the Recovery Act appropriated \$7.2 billion in its broadband provisions to extend the nation’s broadband infrastructure and promote broadband adoption by communities across the country. Specifically, the Department of Agriculture’s Rural Utilities Services was awarded \$2.5 billion to facilitate infrastructure deployment under its Broadband Initiatives Program. The Recovery Act also specified that at least 75 percent of the area served by a funded project should be a rural area without adequate access to broadband service. The National Telecommunications and Information Administration (NTIA) also received \$4.7 billion to establish its Broadband Technology Opportunities Program (BTOP). Under the BTOP, \$200 million was made available to expand public computer center capacity, and another \$250 million was allotted to encourage sustainable adoption of high speed Internet. Furthermore, \$350 million of the BTOP funding was designated to develop and maintain the now accessible National Broadband Map as transparent data on nationwide broadband Internet services.

The FCC 2010 National Broadband Plan

The FCC publicly released its National Broadband Plan pursuant to the Recovery Act. The National Broadband Plan aims to “create a high-performance America” in which “affordable broadband is available everywhere and everyone has the means and skills to use valuable broadband applications” (FCC 2010, 9). According to the plan, the FCC outlined six goals for 2020:

- 1) At least 100 million U.S. homes should have affordable broadband connection at 100 Mbps download speed and 50 Mbps upload speed.
- 2) The United States should lead the world in mobile innovation, with the fastest and most extensive wireless networks of any nation.
- 3) Every American should have affordable access to robust broadband service, and the digital literacy to adopt the service.
- 4) Every American community should have affordable access to at least 1 Gbps broadband service to anchor institutions such as schools, hospitals and government offices.
- 5) Every first responder should have access to a nationwide, wireless, interoperable broadband public safety network to ensure the safety of the American people.
- 6) Every American should be able to use broadband to track and manage their real-time energy consumption to ensure that America leads in the clean energy economy.

Following the National Broadband Plan, the FCC approved a sweeping overhaul of the nation's Universal Service Fund in November 2011 to support the construction of broadband network in rural areas. Under the new Connect America Fund, an annual budget of \$4.5 billion will be devoted to avail high-speed Internet in rural areas over the next six years (FCC 2011).

Despite explicit federal goals to remain at the forefront of broadband innovation and performance, the United States steadily lags behind other countries after the FCC 2010 Broadband Plan. Thirteen Organization for Economic Cooperation and Development (OECD) countries have now achieved higher household broadband adoption rate than the United States, and the average monthly broadband subscription cost is lower in nineteen OECD nations than the United States (OECD 2011).

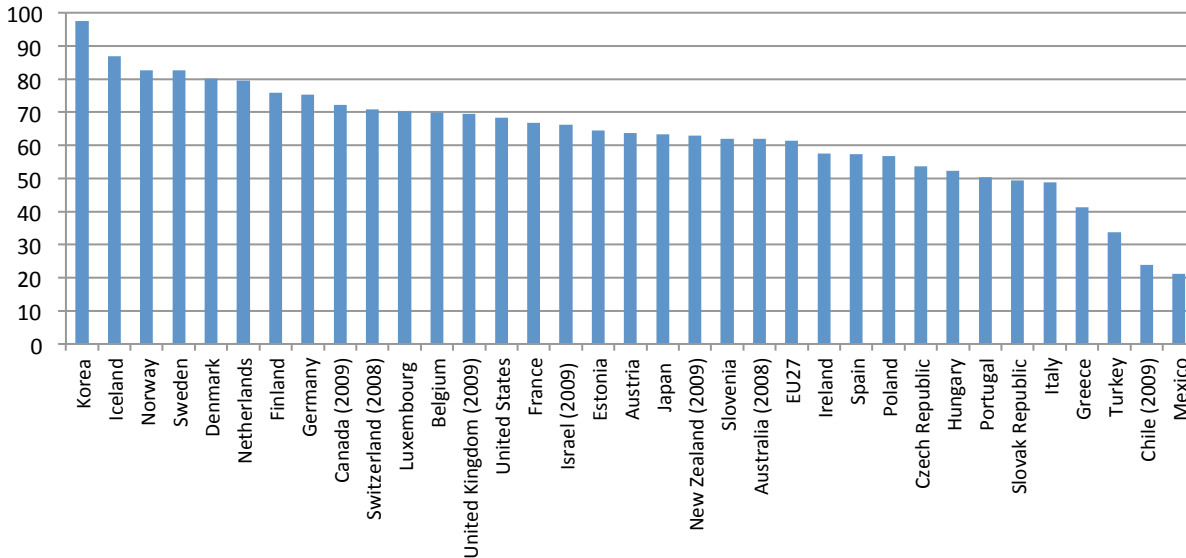
Current Broadband Development

Currently, the standard broadband technologies available are DSL and cable modems. DSL is the fixed telephone line transmission technology that transmits data over copper phone lines that are installed to homes and businesses. Cable modem technology delivers broadband service with the same coaxial cables that transmit pictures and sound to the television. Fiber optic technology and wireless broadband connection are the newer transmission platforms that have yet to be widely adopted. It is imperative to raise data transmission speeds because Internet services now heavily involve video-streaming and interactive media. In conjunction with the National Broadband Plan, the FCC now defines broadband as data transmission service with 4Mbps download speed and 1Mbps upload speed (4Mbps/1Mbps) (FCC 2011, 2).

According to the 2011 FCC Broadband Progress Report, twenty-six million American live in areas that lack access to a broadband-capable network (FCC 2011, 92). In addition, approximately one-third of Americans – more than a hundred million people – do not subscribe

to broadband Internet service (FCC 2011, 92). Among the OECD nations, the United States ranks fourteenth highest, with sixty-eight percent household broadband penetration (Figure 1).

Figure 1. Percentage of households with broadband access among the OECD nations, 2010 or latest available year.



Source: OECD, 2011

The FCC also indicated in its Seventh Broadband Progress Report that only 33.6 percent of reportable Internet service connections met the agency’s measurement benchmark (FCC 2011, 31) (Table 2). The FCC’s finding corresponds to Akamai’s latest State of the Internet Report that the average connection speed in the United States is 6.1 Mbps, the thirteenth-fastest average speed in the world. South Korea boasts the fastest connection with an average speed of 16.7Mbps, followed by Hong Kong at 10.5Mbps, and Japan at 8.9Mbps (Akamai 2012, 14). In fact, San Jose, CA; Plano, TX; and Fremont, CA; are the only three American cities ranked among the top fifty cities worldwide in average Internet connection speed (Akamai 2012, 15). At present, the nation’s broadband penetration and speed is a far cry from the FCC’s goal to provide 100Mbps Internet access to 100 million homes by 2020. A year after announcing the National Broadband Plan, the FCC conceded that “broadband is not being deployed to all Americans in a reasonable and timely fashion” (FCC 2011, 27).

Table 2. Reportable Internet connections by download speed/upload speed as of June 2010

Download speed/Upload speed	Percentage of reportable Internet connections
786kbps/200kbps or faster	59.7%
3Mbps/768kbps or faster	33.6%

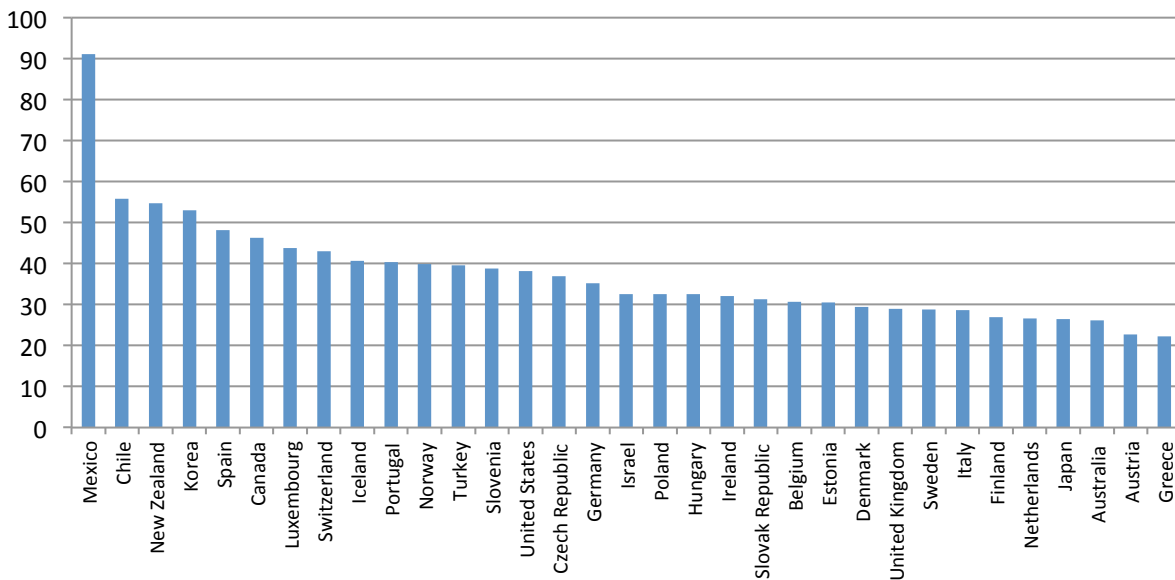
6Mbps/1.5Mbps or faster

19.2%

Note: The 3Mbps/768kbps connection speed represents the best proxy to the FCC's benchmark of 4Mbps/1Mbps. Source: FCC Seventh Broadband Progress Report, 2011.

Despite the relatively poor Internet service, the United States only ranks twentieth for the lowest average monthly subscription costs among the OECD nations (OECD 2011) (Figure 2).¹⁰ Ookla, the global leader in Internet-metrics measurement, ranks the United States eighteenth worldwide in average subscription cost per Mbp (Ookla 2011). The New America Foundation observed that a 100 Mbps broadband connection costs as little as \$16 per month in Sweden, whereas service that is only half as fast costs \$145 per month in the United States. According to the 2010 Current Population Survey, 34 percent of dial-up Internet users cited cost as the primary impediments to broadband adoption (NTIA 2011, 35). In the same survey, 24 percent of households without computer or home Internet access reported affordability as the main reason to their non-Internet adoption (NTIA 2011, 35). With respect to broadband affordability, household penetration, speed and value for money, Strategy Analytics ranked the United States twenty-third out of fifty-seven countries in broadband development, behind nations such as South Korea, Hong Kong, Netherlands, Lithuania and Japan (Strategy Analytics 2011).

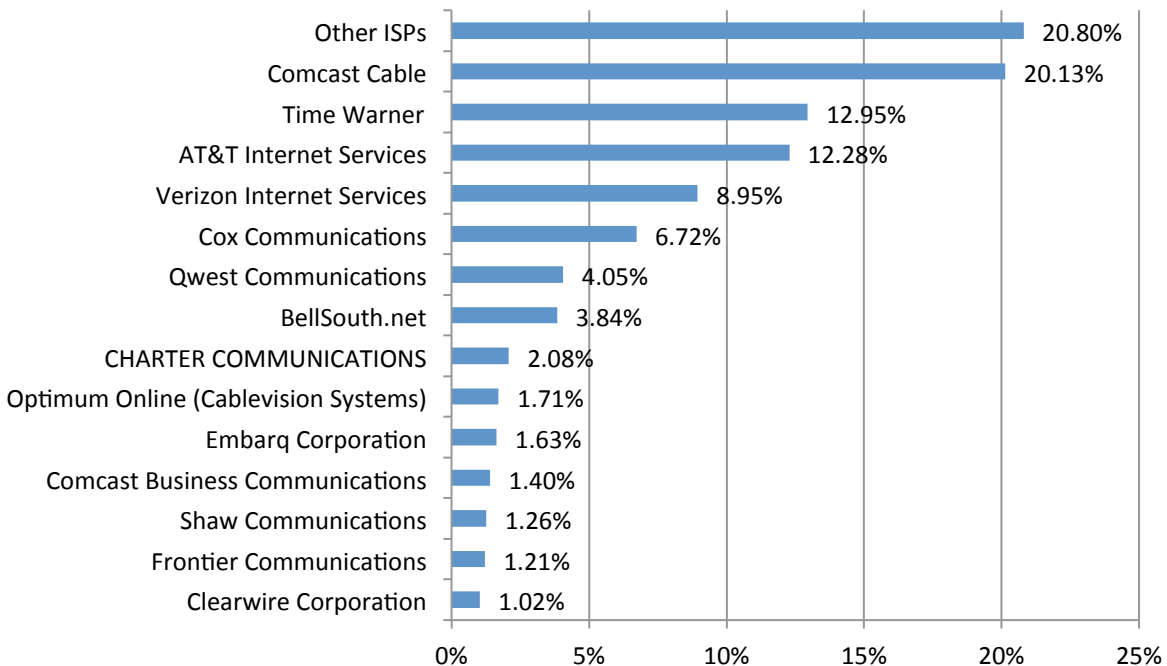
Figure 2. Average monthly subscription price for Internet connections between 2.5 and 15 Mbps advertised download speed, USD PPP.



Source: OECD, 2011.

Network effects characterize the local broadband markets: the value of a broadband Internet network increases with every addition of a user to the network, and vice versa. Thus, the largest network with the most subscribers would be perceived as the single network that everyone has to join, while other ISPs wither away (Nuechterlein & Weiser 2005, 4 and 5). Competition between dominant firms also requires constructing additional wiring and infrastructure, which is duplicative in most markets. The sunk costs associated with network deployment and installations are high; therefore barriers of entry to the broadband market deter potential competitors from undercutting exorbitant prices. Due to these restrictive factors, the current broadband market has evolved into a ‘cable-phone’ duopoly. The cable-phone duopoly, which is mainly comprised of Comcast, Time Warner, AT&T, Verizon and Cox Communications, enjoyed a combined market share of 61.03 percent between February 2011 and January 2012 (Figure 3), a 2.11 percent increase from the February 2010 to January 2011 period (Stat Owl 2012). The top ten ISPs altogether controlled 74.34 percent of the entire market (Stat Owl 2012).

Figure 3. ISP Market Share between February 2011 and January 2012



Source: Stat Owl, 2012.

In the National Broadband Plan, the FCC underlined that broadband ISP competition in the United States is “surely fragile,” and its data “only provide[s] limited evidence of price competition among providers” (FCC 2010, 37). The Commission discovered that 78 percent of residential consumers have two ISPs options, and another 13 percent of consumers only have one

ISP option (FCC 2010, 37). Because of this conspicuous market concentration, corporate firms instead of consumers dictate service deployment and prices. The lack of competition in turn prevents subscription costs from falling, and bars a large number of potential consumers from adopting broadband Internet services.

The current broadband situation in the United States is a stark contrast to the rapidly growing quality and plummeting prices in other nations. Anticompetitive business and legal barriers in the past fifteen years have evidently empowered incumbent phone and cable corporations to control broadband development in the United States, leading to an absence of robust broadband service and limited consumer options. Consequently, the 1996 Act has failed to fulfill its objective to deliver high quality universal service nationwide at just, reasonable, and affordable rates.

Looking Ahead: Proposed Policy Changes

The 1996 Act was passed with an expectation that a competitive telecommunication market would naturally develop if market forces were given freer reign. Instead, by the tenth anniversary of the 1996 Act, the act was “commonly seen as broken and in need of either wholesale revision or complete replacement (Bauer et al. 2006, 416).” Despite the 1996 Act’s notable lack of staying power compared to the 1934 Act, Johannes Bauer and Steven Wildman, telecommunications professors at Michigan State University, argue that the challenges faced by the 1996 Act can be seen as “an inevitable part of a period of reassessment and adjustment as legislation intended to transform a whole sector of an economy is implemented (Bauer et al. 2006, 416).” The frustration over slow private sector deployment of advanced infrastructure also reflects rising awareness that the rapid convergence of telecommunications and cable technologies for broadband Internet services has led to a host of regulatory issues that were not anticipated by the 104th U.S. Congress.

In sum, there are four lessons that could be learned from the responses by all interested parties to the 1996 Act:

1. Technology alone cannot create a diverse and innovative communication system, nor can it change the disparities in market power between entrenched incumbents and new competitive firms, or the business incentives to exclude competition.
2. The duopoly that is achieved by local incumbent telephone carriers and cable companies does not amount to true competition.
3. Consumer choice instead of corporations should dictate service deployment and market development. It is crucial to have a plethora of competitive service available to consumers so that they can select the service that best meet their needs.

4. It is vital to have effective and swift enforcement of legal rights and obligations of telecommunications companies, because dominant firms can often use the legal process to deny competition by a “slow, procedural death” (Lampert 2006, 528).

A common criticism of FCC’s National Broadband Plan is the failure to introduce adequate competition. Yochai Benkler, co-director of Harvard’s Berkman Center for Internet and Society, warned that “[w]ithout a major policy shift to increase competition, broadband service in the United States will continue to lag far behind the rest of the developed world” (Benkler 2010). Therefore, it is important to analyze how policies of countries with high broadband capacity have spurred industry innovations.

In examination of several nations’ broadband successes, open access and unbundling of network elements remain the key elements to promote market competition and boost broadband innovation. In a comprehensive study for the FCC, the Berkman Center for Internet and Society learned that other countries had managed to expand access and lower rates over the last decade because of “a commitment to open-access policies, requiring companies that build networks to sell access to rivals that then invest in, and compete on, the network” (Benkler 2010). In countries that lead the United States in various broadband metrics, such as Japan, Denmark, Sweden and France, competition introduced through open access have driven improvement in connection speeds, reduced prices, and service innovations (The Berkman Center 2010, 84).

In Japan, the government mandates local loop unbundling to allow entrant firms to emerge. Despite owning a 34 percent stake in NTT Communications Corp, a major telecommunication firm, the Japanese government ordered the firm to deploy network fiber regardless of profitability (Windhausen 2008, 60). Furthermore, the Japanese government has also subsidized a third of the cost to deploy network fiber in rural areas. These governmental initiatives have led Japan to rank third in average national broadband speed and fourth in broadband service affordability. Similarly, local loop unbundling was mandated in France and enforced by regulatory body ARCEP since 2001, which sparked a healthy growth in the broadband market (Windhausen 2008, 58). In 2007, new fiber rules necessitated the deployment of a fiber optic local loop, which spurred competing ISPs such as Iliad and Neuf Cegetel to construct their own fiber infrastructure. Currently, high-speed Internet service is available in France for \$32.70 a month, bundled with high-definition television long-distance and international calling.

It is also imperative to reverse state restrictions and allow municipal entities to launch their own broadband Internet network in local communities. According to a comprehensive map developed by the Institute for Local Self-Reliance, more than 130 U.S. cities now operate publicly owned broadband networks (ILSR 2011). Among these cities, city-owned EPB Fiber Optics service in Chattanooga, Tennessee, now provides high-speed Internet up to 1000Mbps (Chattanooga 2011). Likewise, the Greenlight Community Network in Wilson, North Carolina now offers television, phone service, and Internet service at 100Mbps to subscribers (Wilson

2011). In contrast, Time Warner's Road Runner plan in Wilson only provides Internet service up to 50Mbps, which is hardly comparable to Wilson's municipal service (Time Warner Cable 2012). In fact, a Time Warner's spokesperson told a technology newsletter that the firm did not offer a more competitive service because it "heard no outcry from the citizens of Wilson demanding higher speeds" (TechJournal 2009). Because publicly owned broadband networks are more likely to maximize service value to local communities, they will have more incentive to deliver competitive broadband services that fulfill consumers' needs than corporate executives.

Given these assessments, there is little doubt that the United States is in dire need of market competition through open-access of infrastructure and municipal-provided networks. Network unbundling mandates and investment in fiber-optic infrastructure have successfully promoted broadband penetration while lowering broadband subscription cost in the United States' global competitors. These are precisely the policies that the United States needs to achieve the goals of the National Broadband Plan. Otherwise, the present course of broadband will lodge an insurmountable obstacle in the United States' path towards achieving innovation and universal service.

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¹ High-capacity Internet transmits voice, videos and data that are bandwidth heavy seamlessly, as opposed to dial-up Internet, which is suitable for simple applications such as Internet surfing and emailing.

² AT&T's coercion of independent companies led the Kingsbury Commitment of 1913, where AT&T resolved disputes with the Department of Justice by agreeing to interconnect its Long Lines division with the independent companies.

³ Calling areas that were not served by the Bell System's local exchange operations were instead served by other state-sanctioned monopolies, such as GTE Corporation.

⁴ Regulators believed in the economics of natural monopoly theory, and relied on AT&T to advance the federal government's social goal of “universal service.” Until the 1960's, the federal government was persuaded by AT&T to maintain its monopolist position and to bar competition in all phone-related markets.

⁵ The Department of Justice charged AT&T for 1) foreclosing the telephone equipment market with a bias towards its Western Electric subsidiary; 2) engaging in predatory pricing; 3) denying interconnection of specialized common carriers with the Bell network; and 4) denying interconnection of non-Bell equipment to the AT&T network.

⁶ Telephone companies were previously prohibited from entering the cable television business under the Cable Communications Policy Act of 1984, 47 USC §521-559. Currently, telecommunications companies can provide cable services under the 1996 Act Section 302.

⁷ An incumbent local exchange is specifically defined under the 1996 Act's 47 USC §251(h)(1).

⁸ Currently, the Federal Trade Commission and the Department of Justice jointly enforce antitrust laws on mergers and acquisitions. The 1996 Act does not have any provision that would prevent mergers and acquisitions among telecommunications companies.

⁹ FCC eliminated facilities sharing requirements only on facilities-based wireline broadband Internet access service providers. This requirement is currently still valid for phone service providers.

¹⁰ The FCC warned that the comparison of broadband service prices across countries is complex because "service is often offered under a multi-part pricing scheme, and broadband is frequently purchased as part of a bundle of services." The agency also noted that different providers frequently adopt different price structures for broadband Internet access service. (See The FCC Second International Broadband Data Report 2011, page 8). Due to the different price structures, the OECD publishes separate data sets for the average monthly subscription prices for connections below 2.5Mbps, connections between 2.5Mbps and 15Mbps, connections between 15 and 30Mbps, connections between 30Mbps and 45Mbps, and connections faster than 45Mbps.