



## CHAPTER

## 6 Data, Policy, and Democracy

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### Abstract

This chapter discusses access to broadband services within the context of democracy. It argues that the roots of information policy can be found in the implied social contract between governments and the governed and describes a new social contract relevant for the information age. It begins with an overview of the tradition of access to communication within the American commitment to the trinity of opportunity, participation and prosperity, followed by a discussion of the goals of Universal Service policy mandated by the U.S. Federal Communications Commission in the Telecommunications Act of 1996. It then considers the 4 Cs of access that allow communities to exploit the benefits of broadband access: connectivity, capability, content, and context. It also examines trends in household broadband adoption in the United States and proposed remedies for connecting a large population. Finally, it assesses the implications of universal service policy for policy makers.

**Keywords:** [broadband services](#), [democracy](#), [information policy](#), [social contract](#), [information age](#), [communication](#), [Telecommunications Act 1996](#), [broadband access](#), [broadband adoption](#), [United States](#)

**Subject:** [Museums, Libraries, and Information Sciences](#)

Let it be remarked ... that the intercourse throughout the Union will be facilitated by new improvements. Roads will everywhere be shortened, and kept in better order; accommodations for travelers will be multiplied and meliorated; an interior navigation on our eastern side will be opened throughout, or nearly throughout, the whole extent of the thirteen States. The communication between the Western and Atlantic districts, and between different parts of each, will be rendered more and more easy by those numerous canals with which the beneficence of nature has intersected our country, and which art finds it so little difficult to connect and complete.

—James Madison<sup>1</sup>

Madison's description of the infrastructure necessary to combine thirteen colonies into a unified state gave readers of Federalist Paper 14 an assurance that democratic and economic participation could become a reality under the new government. Madison also drew the necessary causality—the potential to participate in the discourses of the nation depended on access to the communications infrastructure. Madison's assurance spoke to an entire nation then, and still rang true as individuals tried to find their way through the maze of an election year in the throes of the great recession. For in the twenty-first century, as in the eighteenth century, access to the communication infrastructure opens the gate to political and economic participation.

Conversely, for those confronting forced choices, losing access can be catastrophic. A July 17, 2010, *New York Times* article captured the forced choices of Terri Sadler, a Kentucky native. Ms. Sadler lost her job in 2008 and, eventually, her unemployment benefits as well. Yet, amid ever constraining forced choices, Sadler continued to pay her Internet bills because she needed access, in order to continue her job search.<sup>2</sup> For those with Internet access, the Web has become a major, if not primary, source of information for work, business, taxes, buying, selling, learning, communication, as well as political participation. The 2009 *Pew Internet and American Life Project* report on home broadband adoption described the dimensions of broadband penetration amongst households in the United States—home broadband adoption stood at 63 percent of adult Americans as of April 2009, up from 55 percent in May 2008, while dial-up access has fallen below 10 percent.<sup>3</sup> Nonetheless, approximately one-third of American households remain on the margin of broadband adoption.

## The Tradition of Access in the United States

Historically, access to communication has been assumed within the American commitment to the trinity of opportunity, participation and prosperity—a commitment so deep that it constitutes an enduring social contract.<sup>4</sup> Yet, even as it continues to resonate, it is being redefined by a heightened appreciation for the value of communication networks. There has long been an appreciation that the members of a network benefit from the addition of a new member; thus, the motivation to integrate national and regional networks into one great network whose membership spans the globe. More recently, the success of Internet networks, like Facebook and eBay, have drawn attention to the added value brought to the network by members who also contribute innovative content. In this regard, growing understanding of the value of dynamic network externalities places access—and lack of access—in a new perspective.<sup>5</sup> That is, the penalty incurred by insufficient access goes beyond loss of communication with members of the network; insufficient access adds an additional penalty brought about by the inability to benefit from content on the network.

We now understand what's at stake when we fail to provide access to citizens. Indeed, the stakes are higher today than they were when the goal of access to a telephone (plain old telephone service) marked the bar of our achievement. They are, perhaps, as high as they were when Madison proposed a national infrastructure—what's at stake, as it was then, is cohesion, integration, and global standing.

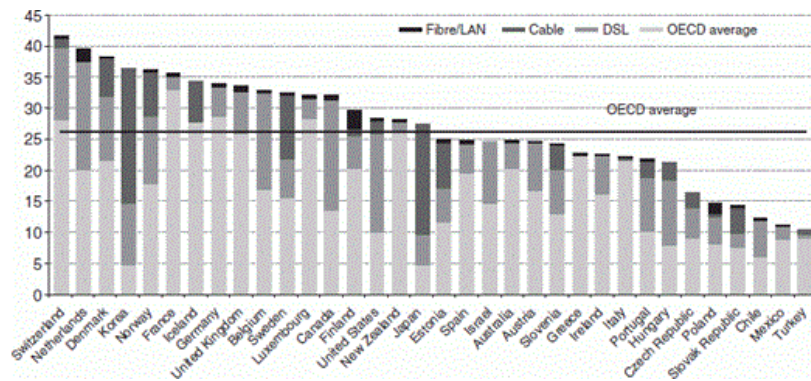
*Access as a moving goal.* With the diffusion of Internet access infrastructures around the world, tracking of countries' efforts to achieve universal broadband access, by the Organization for Economic Co-operation and Development (OECD), has drawn attention to lagging American performance. As countries such as Sweden, South Korea, and the United Kingdom register levels of access higher than the United States, it sets off a contretemps of finger pointing. For most of the last decade, the discourses that influence telecommunications policy have charged the United States with lagging behind other OECD countries in broadband penetration.

June 2012 OECD rankings place the United States at fifteenth amongst industrialized countries in per capita broadband adoption—28.4 subscriptions per 100 inhabitants, up from 25.5 in December 2008. By contrast, Switzerland and the Netherlands (#1 and #2 respectively) enjoy per capita adoption rates of 41.6 percent and 39.4 percent.<sup>6</sup> Where the United States occupied twelfth place in 2002, it now hovers at fifteenth—the slippage and its implications are obvious, yet also misleading. A drive across rural America with its utility poles stretching to the vanishing point underscores the impact of geography on telecommunications costs. Clearly the deployment of broadband across the Netherlands, or even Sweden, lacks comparability with US regions such as Colorado, Montana, or Pennsylvania, not to mention Alaska. Part duel between political parties and part anxiety over American decline in the twenty-first century, the question of household penetration bears greater relevance for US competitiveness than it does for some conceptualization of an international telecommunications race.

*Universal service.* In the United States the goals of Universal Service mandated by the FCC in the Telecommunications Act of 1996 include:

- Promotion of the availability of quality services at just, reasonable, and affordable rates for all consumers.
- Increase of nationwide access to advanced telecommunications services.

Figure 6-1.



Fixed and wireless broadband subscriptions per 100 inhabitants (June 2012).

Source: OECD (<http://www.oecd.org/internet/broadband/oecdbroadbandportal.htm>).

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- Advancement of the availability of such services to all consumers, including those in low-income, rural, insular, and high-cost areas at rates that are reasonably comparable to those charged in urban areas.
- Increase access to telecommunications and advanced services in schools, libraries and rural health care facilities.
- Provision of equitable and nondiscriminatory contributions from all providers of telecommunications services to the fund supporting universal service programs.<sup>7</sup>

Universal Service policy in the United States has primarily been defined by equal opportunity—to participate in the processes of democracy, and in the potential to prosper economically. Access to telephone and now broadband services constitutes an important aspect of every citizen’s minimum basket of goods.

## Connectivity, Capability, Content, and Context

Mandating a connection to the national telecommunications network will not, by itself, guarantee meaningful access, especially for those groups at the technological margins. A community must marshal resources to make the most of the potential offered by access. For communities to exploit the benefits of access, they must mobilize connectivity, capability, content, and context—the 4 C’s of access.<sup>8</sup>

*Connectivity.* The simple act of laying a cable to connect a household belies the complexity of attaining a level of *connectivity* sufficient to constitute a community asset. The Telecommunications Act of 1996 defines high-speed Internet as connection speeds above 256 kilobytes per second (kbs), a household standard far below the 100 megabytes per second (mbs) necessary for some applications, and currently in place in parts of Korea and Sweden. What seems likely is that Americans will connect at widely varying baud rates resulting in a patchwork quilt of connectivity bandwidths. As governments, businesses and content providers develop products and services that require high-speed Internet connections, communities with less available bandwidth will experience a “broadband digital divide.”

*Capability.* Because the utility of any technology derives directly from the skill of the user as well as from the delivery capacity of local institutions, *capability* gauges the capacity to make the most of the service. For individuals, capability encompasses both formal and informal educational attainment and levels of technical sophistication and understanding, along with the willingness to adapt to new technologies and ways of thinking. At the institutional level, capability also relates to resources a community makes available.

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Inevitably, commitment of resources varies from community to community. Nonetheless, investment pays off because capabilities are cumulative and recursive.

*Content.* Once individuals and communities connect, and develop the capabilities necessary to exploit the Internet, *content* becomes currency. Not only do websites appear spontaneously, once Internet access takes root, but business models depending on freely contributed content succeed as well. The benefit of content generated by users underscores the value of dynamic network externalities.

*Context*. Environmental factors (e.g., mountainous terrain), economic conditions (e.g., business incentives, tax structures, or unemployment), and social indicators (e.g., poverty, ethnicity, or rurality) contribute to disparities in access, as well as variations in the success of policies aimed at improving access. In other words, communication networks of all kinds operate within the multiple frames of society and culture. The circumstances of connectivity, capability, and content vary considerably. And, although *context* does not determine a community's developmental trajectory, it does suggest the importance of considering community attributes.

By conceptualizing the Internet as a pluralistic domain that includes the broader context in which technical components are embedded, we explicitly connect social with technical to conceptualize the Internet as an interdependent, socio-technical network. In so doing, we emphasize the importance of context in determining community-level interventions, as well as recognize the inherent difficulty in developing "best practices" that can be applied validly across diverse settings. Thus, the goal of connectivity, at the heart of most policies aimed at increasing access or bridging the digital divide, represents but a small first step toward functional access and empowerment. Capability, content, and context must be woven into any strategy seeking to achieve a better informational future for all.

## Trends in Household Broadband Adoption

The Telecommunications Act of 1996 expands on, but nonetheless endorses, the goals of the Communications Act of 1934. Perhaps the most important conceptual contribution of the 1996 Act is to put forth the idea of Universal Service as an evolving concept, thereby embracing the successive evolutions of the Information Age. The act also endorses outcomes; for, as with all of US history's "universal services"—rural free delivery, public primary education, electrification, the interstate highway system, public libraries—the measure of success is one of inclusion, thus our interest in the progress of household broadband adoption.

p. 108 The Pew Research Center's *Internet & American Life Project* ("Pew Project") on household broadband adoption for 2009 reports an increase in home adoption to 63 percent in 2009, despite the ongoing economic recession and the rising costs of broadband services. This represents an increase from the "high-speed" adoption levels reported between December 2007 and December 2008 when the adoption stagnated between 54 percent and 57 percent.<sup>9</sup> Interestingly, growth in home broadband adoption has been most pronounced among population subgroups with below average adoption levels—senior citizens, low income Americans, high school graduates, older baby boomers, and rural residents. This increase in household broadband penetration reinforces the interpretation that Americans increasingly view access to broadband as a basic necessity for every citizen's minimum basket of goods and services. Consequently, efforts to reach out to nonusers of broadband services take on added urgency.

But, who are the nonusers of broadband services? We have a much clearer understanding of the demographics of the people who adopt high-speed Internet access and of the factors that influence broadband adoption than we do of the factors that contribute to broadband nonadoption. The Pew Project survey in April 2009 reported that 21 percent of adults do not use the Internet, while 5 percent indicated that they are not interested in getting online.<sup>10</sup> That last 5 percent is significant, in part because the statement "not interested" masks multiple motivations and circumstances, but also because 5 percent roughly coincides with the percentage of American households that still do not have a telephone.

Taking the Pew findings at face value, one might follow the obvious trail of logic: a) the telephone has been around for a long time; b) anyone who wants a telephone can have one; c) therefore, anyone without a phone, doesn't want one. The similarity in percent of households who are "not interested" in Internet service, as reported by Pew, seemingly strengthens the validity of the inference that those without telephone service do so voluntarily. The lesson for policy makers: don't waste your resources here. Yet, as tidy as the logic might seem, it contains one major flaw. The conclusion has been reached without direct evidence from those households without telephone service.

In the 1990s, an in-depth look at households without telephone service found a complex interplay of dynamics involving poverty, unstable households, gender, children, race, and ethnicity. Households under pressure often lost telephone service involuntarily, and were not able to assemble sufficient resources to reconnect. Moreover, there was no single demographic group comprising the "phoneless."<sup>11</sup> What is clear is

that telephone penetration leveled off at the end of the 1970s and has remained there for three decades.<sup>12</sup> Federal subsidy programs, in place for most of that time, have failed to reach this population of nonusers. The fact that roughly five million households remain without telephone service seventy-nine years after the passage of the Communications Act of 1934 should be a cause for concern. Certainly, those households without telephone service incur the burden of attempting to function in a telephone-dependent society. Perhaps more importantly, the persistence of 5 to 7 percent of households without telephone service represents a barrier to the achievement of universal Internet access.

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## Taking up the Challenge of Connecting a Large Population

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Proposed remedies abound and questions persist. Will more competition, greater availability of broadband services and affordable prices significantly raise the level of broadband penetration? In Pew's *Closing the Broadband Divide*, John Horrigan writes, that it will be difficult to attract the nonusers of broadband services from the digital sidelines unless policy makers apply more aggressive strategies to reach out to underserved populations, in order to educate them regarding the benefits of being in the connected world.<sup>13</sup>

At the state and local level, proposed remedies abound. One oft-tried approach provides access in public places such as senior centers, grocery stores, schools, churches, and libraries. The notion that *community* consists of one or more geographic hubs to which citizens commute drives the search for community centers that reach the largest number of citizens. For the most part, local leaders believe that schools and libraries offer the optimal location for reaching members of the community. Yet, even an approach as direct as this varies from town to town, for what constitutes a public place, or "community center," depends on the cultural factors that shape the community. In 2004 Strover, Chapman, and Waters evaluated the results of setting up community networks in thirty-six communities across Texas over a two-year period. Leaders in the majority of communities equated "providing public access" with increasing computer and Internet availability in schools and libraries. Nonetheless, the results provide a mixed bag of successes and failures. In some communities, senior centers, youth clubs, and recreational centers proved successful in providing access to broadband services for the members of the town, while in others they failed miserably.<sup>14</sup> Communities, after all, contain complex social systems that do not always respond to "build it and they will come" strategies.

Rural communities pose distinctive challenges. In contrast to urban communities or neighborhoods, even those subject to redlining, the provision of broadband access to underserved rural areas often requires the build-up of infrastructure across distances with few homes, creating conditions of low profitability for providers. While the "problem of distance" is not the sole cause of a lagging broadband rural sector, historically distance has shaped or thwarted the deployment of every infrastructure from the Erie Canal to the interstate highway system.<sup>15</sup> The quest for rural broadband now receives impetus from the American Recovery and Reinvestment Act of 2009, part of the Obama administration's stimulus effort. The stimulus has opened up a new line of thinking among community groups and state and local officials.

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Community groups as well as nonprofit organizations have formed alliances to pool resources and put together proposals in an effort to win federal money for broadband expansion. For example, Open Cape aims to provide a wholesale, open access network covering the Cape Cod area. The goal is to use the federal stimulus money to cover the middle mile and hope that once the middle mile is covered a private company will be able to justify the cost of building the last mile.<sup>16</sup> Connect Ohio is another grassroots organization working with groups of stakeholders in the Ohio region to bring affordable high-speed Internet to the rural areas of the state. One of their success stories is the Pearl Valley Cheese Company. Located in Fresco, Ohio, Pearl Valley was able to expand its business beyond its immediate county, primarily due to broadband access.<sup>17</sup> The Department of Agriculture (USDA) and the Rural Utilities Service (RUS) have awarded loans, grants, and combinations, to sixty-eight recipients in thirty-one states for projects worth \$1.068 billion.<sup>18</sup>

We now return to Madison's vision of the value of the network. In two direction-altering articles Bar and Riis,<sup>19</sup> followed by Jayakar and Sawhney,<sup>20</sup> introduced the concept that the greater value of a telecommunications network extends beyond the immediate value to the members of adding one more subscriber. In a path-breaking analysis of "dynamic network externalities" they concluded that "motivations for policy moves beyond static short term considerations about equity and the attendant welfare minded subsidies to dynamic long-term innovation, creation and growth." In other words, the old view observed that each new member of the network leads to an increase in the number of interactions; the new view supplements the old view by recognizing that additions to the network also contribute new content, which interacts and catalyzes the creation of even more new content. For example, new content attracts attention to an Internet site, increasing the number of new members yet again who then go on to create even more new content, thereby generating "dynamic" externalities. This ferment in the crucible that is the Internet generates value above and beyond the value derived from the network's scale.

p. 111 The National Broadband Plan, unveiled by the FCC in April 2010, does not mention externalities, static or dynamic, though it embraces the notion of broadband as both asset and catalyst. "Broadband is a foundation for economic growth, job creation, global competitiveness and a better way of life. It is enabling entire new industries and unlocking vast new possibilities for existing ones."<sup>21</sup>

What is now clear to mainstream policy thinkers is that a well-developed broadband infrastructure can have the same multiplier effect on economic activity as did the building of the highway infrastructure, or indeed any other core infrastructure network. Yet, though broadband penetration has grown from eight million in 2000 to two hundred million in 2010, there were one hundred million Americans without access to broadband in the home in 2010.<sup>22</sup>

There are two major concerns here. First, without a concerted effort to deploy a broadband infrastructure across the nation, penetration may well stagnate at around two-thirds of households,<sup>23</sup> given the long-term likelihood of a stalled economy—and that's presuming that income is the only factor influencing broadband adoption. Second, given the persistence of 5 to 7 percent of households without telephone service after 130 years of deployment, estimates of total broadband adoption are surely unrealistic. Thus the challenge—for if a twenty-first century universal service policy is to deliver on its ultimate promise, then it has to offer each and every person the opportunity to exploit the network's economic, political, creative, and personal resources and opportunities.<sup>24</sup> Consequently, policy makers should look at universal service policy as an opportunity for both providers and users of the service rather than as an obligation to be borne by the network providers alone.<sup>25</sup>

## Implications for Policy Makers

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Fundamentally, policy makers should envision universal service policy as a component within a larger strategy to advance American global competitiveness. Recent OECD rankings show countries like the Netherlands and South Korea approaching universal access while the United States hovers at 63 percent penetration.<sup>26</sup> Yet, the seemingly obvious inference to be drawn from slippage in the rankings—to push for universal access—presents problems of its own. In a country of great geographic, economic, social, and cultural scale, pushing for higher penetration levels incurs ever-greater costs. Economic, social, and cultural factors are less visible but no less real. Without specifically targeted policies aiming to deploy infrastructure and achieve high levels of access among population groups at the margins, household broadband access will likely plateau between 70 and 80 percent. Certainly, it will not surpass the penetration rate for telephone.

p. 112 The low rate of per capita broadband adoption is a pressing policy concern especially if the United States wants to remain competitive in the global arena. In the twenty-first century world broadband penetration is not just a social equity issue but rather an economic necessity. In order to increase broadband penetration, policy makers will have to pursue aggressive and innovative policy measures aimed at reaching increasingly diverse population segments.

In twenty-first century society, information constitutes a major working asset. A society where citizenship, economic security, and leisure depend on access to and skill with information technologies requires access

to communication channels. In such a society, access to the national information infrastructure/network constitutes a civil right, in that the absence of access prevents economic, political, and social participation. When access fails, democracy suffers, the economy is drained, and the social costs are high. Madison understood, as we should today, that the goal of access is to bring participation and opportunity for all.

## Notes

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15. I contributed portions of this chapter on my sister's ranch north of Ridgway, Colorado. At the end of a long and winding dirt road, the ranch lies nestled against the San Juan Mountains beyond the reach of wireline broadband service. My efforts to connect to the Internet via satellite uplink proved slow and frustrating. Downloading a web page required my willingness to wait up to fifteen minutes for a complete screen; email was equally slow and erratic, and atmospheric fluctuations were noticeable. Dial-up service is available, but offers no advantage. Consequently, business at the ranch is conducted almost exclusively by voice over the telephone.
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