

**The Digital Divide:
An Analysis of Social Stratification in United States Internet Use**

Peter Burress¹

¹ University of Wisconsin—Milwaukee

Introduction

Following the Government shutdown of 2013, United States Senator Elizabeth Warren took to the senate floor with a fiercely passionate speech on why Government matters. She said:

In our democracy, government is not some make believe thing that has an independent will of its own. In our democracy, government is just how we describe the things that we the people have already decided to do together. It's not complicated. Our Government has three basic functions: Provide for the national defense, put in place rules of the road like speed limits and bank regulations that are fair and transparent, and build the things together that none of us can build alone—roads, power grids, schools—the things that give everyone a chance to succeed...Our country succeeds because we have all come together to put public institutions and infrastructure together.

As history progresses, it demands new collective action. Until trains were invented, there was no need for government-funded train tracks. Until cars were on the marketplace, there was no need for speed limits. Before electricity, there was no need for a power grid. As Warren highlighted later in her speech, “Our democracy is an experiment, and it’s always evolving. We consistently redesign and reimagine and improve on what we do together” (Warren, 2013). Today, we live in a digital age where the vast majority of schools and workplaces incorporate technology. With the expectation of internet use so high, it is time to add a new item to the list of things we can do better together—broadband access. How can we expect individuals without adequate access to get ahead? We need to reconsider treating broadband access as a commodity, and instead look at it as a human right that is part of our national infrastructure. Ensuring equal access to broadband will help level the playing field for folks working to create a better life for their children. Doing it *together* will push our country forward into a new era of American democracy. The following paper works to support these ideas by looking at the identity of broadband, a brief history of broadband and its connection to public policy, how that connection has battled a vision for broadband being treated as a free market commodity, how misuse of broadband infrastructure

could lead to more inequality, and how proper use can help ensure equality while supporting social and economic mobility for more Americans.

Defining Broadband

Before delving into the primary argument of treating broadband access like a human right, it is important to first understand all of the internet—focused terms that fall under the “broadband” umbrella. Simply put, broadband denotes any one of six, “high speed transmission technologies” (Federal Communications Commission, n.d.). A *Digital Subscriber Line* (DSL) refers to transmission over already-installed copper telephone lines in businesses and homes. A *Cable Modem* indicates internet transmission is provided through the same cables that carry television signal for cable subscribers. *Fiber* is a much quicker transmission technology that converts electric signals to light and transmits that data through tiny glass fibers. Ultimately, that data is transformed into what you see on your computer. *Wireless* refers to transmission of data through radio waves. Speeds of wireless technology are typically similar to DSL or a Cable Modem. *Satellite* is an alternative form of wireless broadband that takes advantage of satellites orbiting the planet that also provide links for things like television and telephone. Satellite services are typically the slowest of all broadband technology. Finally, *Broadband over Powerline* (BPL) refers to transmission through existing electric powerlines. All six of these technologies make up the identity of the encompassing term, broadband, which is the tool used to bring consumers internet access (Federal Communications Commission, n.d.). While some forms of broadband are more efficient and effective than others, the focus of this paper is not to make an argument for a specific type, but rather to shed light on the importance of their collective identity in creating opportunity for more people. For the purposes of this paper, broadband and internet will be used interchangeably (although they do have different

definitions). In order to understand the discussion surrounding treating broadband like infrastructure, it is important to first understand the extent to which the internet has become an integral piece of life in the United States (and world).

Highlighting History

The internet as we know it was not built in a day. Dating back to 1962 when a “Galactic Network” was first conceptualized by MIT’s J.C.R. Licklider, the internet has grown to be largely reflective of Licklider’s vision (Leiner et al., 2012, p. 2). Following, a number of different organizations worked to develop iterations of the “Galactic Network” until 1995 when the Federal Networking Council resolved to use the term, “internet” (p. 14). While details surrounding the development of contemporary broadband tools are interesting, they are far beyond the scope of this paper. Here, we will focus on the basic identity of the internet, how it is accessed through broadband services, and how those services weave through public policy initiatives.

Currently, 286,942,362 United States citizens use the internet, equating to 88.5% of our population (Internet Live Stats, 2016). Despite the perceived prevalence in usage, huge divides still exist between users. In his study, “Contemporary Digital Divides in the United States,” Barney Warf (2012) highlights the need to see this “digital divide” on a continuum that takes into account multiple variables. Like many tools/resources in the United States, Government-sponsored broadband initiatives have ebbed and flowed throughout different presidential administrations. In 1996, President Clinton’s Administration passed the Telecommunications Act to promote development of telecommunications technology in historically underserved geographic regions. Following, the Administration passed massive funding to subsidize

telecommunications services in schools and libraries, an initiative that was praised for helping boost school internet use from 14 percent in 1996 to 98 percent in 2010 (Warf, 2012).

During President George W. Bush's Administration, the digital divide was seen as a non-issue (Warf, 2012). Therefore, funding for these initiatives was cut, and the nation pivoted towards a market-driven telecommunications industry. Unfortunately, the digital divide was not a non-issue, and pivoting away from Government-sponsored subsidies made the situation worse. According to Warf (2012), "Socio-economic variables such as education and income, namely class, are persistent markers of the digital divide in the United States...Roughly one quarter of non-users struggle with literacy problems" (p. 7-8).

More recent initiatives under President Obama's Administration have worked to curb these effects. Specifically, Warf (2012) highlights the American Recovery and Reinvestment Act of 2009, which re-implemented subsidies for broadband access in many rural areas. Ultimately, he concludes that the Government needs to implement universal service requirements so everyone can take advantage of tools broadband provides (Warf, 2012). Unfortunately, debate over the role of Government in ensuring access is likely to continue as presidential administrations change hands. According to Papacharissi and Zaks (2006), this is largely because, "the regulatory mentality in the US favors market self-regulation and views Government involvement as a danger to technological innovation" (p. 64). In a market-driven economy with the persistent delusion that a rising tide lifts all boats, some administrations are likely to prioritize greater and greater access for some, rather than more and more equal access for many. This has led to two very different visions for how broadband should be treated in the marketplace.

The Contested Vision for Broadband

According to Picot and Wernick (2007), two perspectives exist on the role government should have in broadband access: It should either treat broadband as a public good, or as a competition-related commodity. Treating broadband like a public good, the authors argue the government has a responsibility to build broadband infrastructure and implement regulatory policies that ensure competition. Just as food/water safety, security, and other Universal Service Obligations (USOs) are brought under the government's wing, many folks argue the same should be done with broadband.

However, not everyone agrees that broadband should be treated like a public good. This is seen most clearly in recent debates over Net Neutrality. Until recently, the verdict was still out on whether Internet Service Providers should be able to charge users differently based on who they were, what sites they were visiting, and with what frequency. Additionally, this debate included an argument over the extent to which companies could work with Internet Service Providers to increase the frequency and speed by which their specific content was delivered to users. For example, many people argued that a company like Netflix should be able to pay a company like Time Warner more money to have a greater presence in users' searches, and have faster user speeds than a company like Hulu. For instance, this would deter users from using Hulu, in favor of Netflix, a platform that delivers faster content. Generally speaking, this threatens the ability of smaller companies (not necessarily Hulu) to carve a space for themselves on the internet (The White House, 2016).

Fortunately, the Federal Communications Commission fought these initiatives and established Net Neutrality rules on February 15, 2015 (Federal Communications Commission, 2016b). These rules were upheld by the United States Court of Appeals on June 14, 2016 (The

White House, 2016). The rules guarantee that a user logging onto the internet can have equal access to whatever content they are looking for. Further, it ensures that companies are able to effectively compete based on content, rather than competing solely based on their revenue. This would almost certainly augment certain levels of inequality. In their study, “Beyond the ‘Digital Divide’: Internet Diffusion and Inequality in Australia,” Willis and Tranter (2006) highlight the idealistic vision of broadband, as well as the current reality. Their study is a perfect introduction to two very different options for the future of the internet—one rooted in creating equal opportunity for more people, and the other drenched in failed policies that widen the gap between Americans of different statuses.

The Internet and Inequality

As seen with potential outcomes from the Net Neutrality debate, Willis and Tranter (2006) highlight that broadband can help create greater opportunity for everyone by seeing “new technologies as paving the way for a more meritocratic and open society, stratified along dimensions of knowledge and scientific/technological skills, rather than gender, race and class” (p. 44). However, later they argue:

Due to increasing commercial application, the new digital technologies function as commodities, and their distribution—at least initially—tends to follow existing divisions of class, race and gender. Therefore, rather than assisting with equalization, the new information and communication technologies tend to reinforce social inequality, and lead to the formation of socially and technologically disadvantaged and excluded individuals. (p. 44)

These ideas closely follow Willis and Tranter’s outline of diffusion theory, which describes how new technologies typically infiltrate a market disproportionately, first being allocated to folks with more social, economic, and educational capital. However, the authors also stress that, “The diffusion of a physical device (like television or radio access) differs from the up-take of a

technology like the internet” (p. 47). With that idea in mind, perhaps broadband should be treated differently.

To delve into this idea more, it is important to first develop a better understanding of the determinants of the digital divide. In their study, “Toward a Multifaceted Model of Internet Access for Understanding Digital Divides: An Empirical Investigation,” van Deursen and van Dijk (2014) highlight the significance of gender, age, education, income, and experience in access. With regard to gender, the authors highlighted how men experience lower anxiety with usage, potentially because they have been stereotyped as being more capable with technology. Not surprisingly, younger people use the internet most frequently, while older adults experience low use. Educational attainment largely impacts technological awareness and capability of evaluating internet content. Individuals with a greater income can more likely afford materials that support internet use—specifically different devices that all encourage participation online.

The authors claim:

Individuals with desktop computers, laptops, tablets, smartphones, and smart televisions can connect to the internet everywhere and at all times of the day and therefore have considerably more opportunities to develop wide-ranging or varied skills and usage opportunities. (p. 386)

Finally, and again not surprisingly, experience is largely determinant of the degree to which individuals can take advantage of internet resources. All of their findings together, van Deursen and van Dijk (2014) stress the importance of developing policy that extends beyond connectivity, and also focuses on inequalities in skills and levels of use.

When thinking about these disparities, it is important to consider the significance of what Toyama (2016) referred to as the “Law of Amplification” (p. 29). Toyama suggests that technology, specifically access to broadband services should be seen as a tool that “amplifies human capacities” (p. 29). This means that while broadband access has the potential to amplify

the extent to which people can get ahead, it also has the potential to amplify the extent to which people who are already ahead can get ahead further. This idea needs to be taken into account when thinking about the distribution of technological resources.

The Internet and Opportunities for Equality

Despite the unfortunate reality that broadband could lead to greater levels of inequality, if set up in a fair way, it could also create the opposite. Across the country, focused initiatives work to capitalize on the potential of increased broadband access, thereby minimizing the effect that unequal access could have on stratification. In their study, “Public Libraries Building Digital Inclusive Communities: Data and Findings from the 2013 Digital Inclusion Survey,” Bertot, Real, and Jaeger (2016) highlight some of the reasons broadband access is a crucial element of work and upward mobility in twenty-first century America. The authors stress, “The ability to use and navigate traditional computers is essential to filling out employment applications and government forms or to find a job or advance in many careers” (p. 274). A study by Haight, Quan-Haase, and Corbett (2014) adds to this argument by highlighting secondary findings that, “Individuals with less than high school education and less than \$30,000 yearly income have the lowest rate of internet access” (p. 506). For this reason (and probably many more), city libraries average 40.2 public access computers (Bertot et al., 2016). Libraries also help to decrease the digital divide by hosting digital literacy trainings, employment assistance, and help with access to government services. Bertot et al. (2016) go as far to argue that public libraries are the best way to ensure folks are able to participate in their democratic government.

Still, these data represent how decreasing the digital divide is about more than increasing user access. This increase needs to be paired with lessons on how to use the internet, including training on best ways to conduct searches, type of activities, and lessons on how to mine through

irrelevant/misinformed information (Micheli, 2016). In other words, digital literacy matters as much as digital inclusion. According to Bertot et al. (2016), digital literacy is defined as “the skills and abilities needed to make full, personally advantageous use of digital technologies” (p. 271). On the other hand, digital inclusion is simply defined as “access to the internet in order to apply the skills of digital literacy” (p. 271).

Legitimate digital inclusion through effective digital literacy programs shows the potential of Willis and Tranter’s (2006) optimistic perspective on the digital divide. In their study, they highlight how some theorists assumed that “the non-hierarchical nature of the internet, together with the declining cost of computing technologies and increasing user-friendliness, were all seen as socially leveling and as undermining existing patterns of class, race, and gender inequalities” (p. 43). Fortunately, digital inclusion programs are increasing in prevalence across the country.

In his article, “Digital Inclusion,” Carl Richie Jr. (n.d.) features a program called *Unlocking the Connection*, a local initiative focused on bringing broadband access, computers, and literacy training to 4,200 residents in public housing units. The initiative is sponsored by over twenty community partners who see that “the choice between paying for essentials such as medication, utilities and food or the internet is pretty common for public housing residents” (p. 8). Since the program began, more than sixty residents have taken advantage of it, learning about internet use for job searches, checking grades, building relationships with friends, and promoting small businesses through social media (Richie, n.d.).

Other methods of closing the digital divide are also becoming increasingly popular. Recently, the Federal Communications Commission decide to expand its Lifeline program, which previously offered a \$9.25 subsidy to folks who could not afford phone service. That

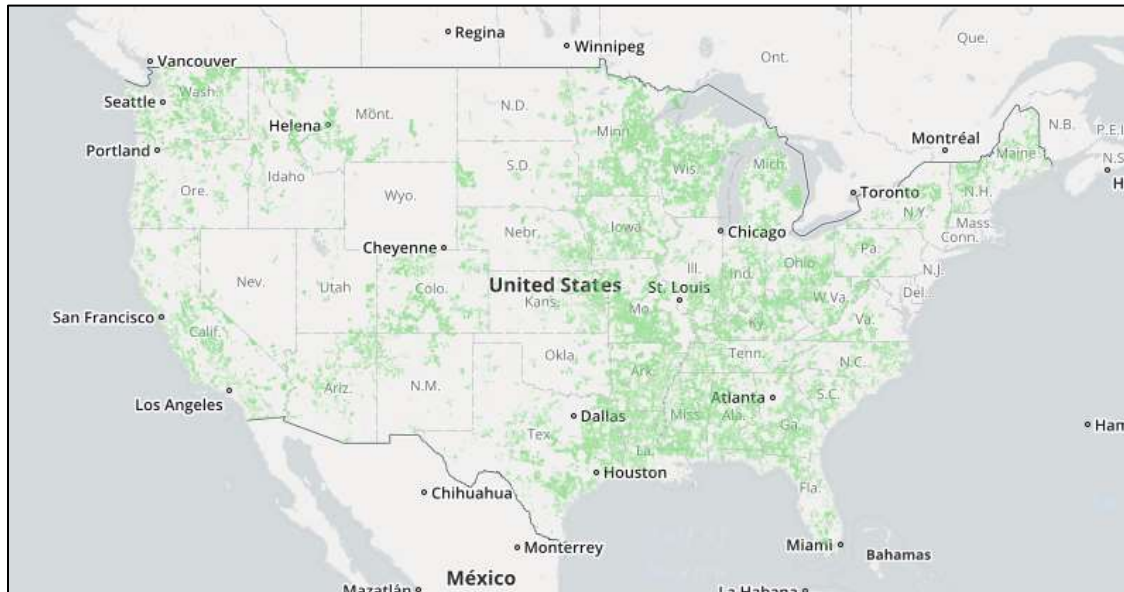
subsidy will now be expanded so more Americans in poor, rural areas will be able to afford internet access. The new rules “set up a single national database to allow phone and internet providers to verify whether individuals are eligible by sharing information from other lower-income programs like Social Security, Medicaid and food stamps (Trujillo, 2016).

For some, subsidies are not only a convenience, but a necessity for broadband access. In places like rural Wisconsin, Internet Service Providers cannot justify the cost of building broadband infrastructure when the customer base is not big enough to foot the bill. According to Barrett (2016), a similar problem occurred with the initial electrification of rural areas in the early twentieth century. In his article, “Rural Wisconsin Pushes for Faster Internet,” Barrett (2016) highlights the Economic Development Corporation of Wisconsin’s Vilas County, and how they managed to secure broadband funding from the Connect America Fund, Phase II program which is facilitated by the Federal Communications Commission. Expanding broadband in the county will not only be beneficial for people who work in the county, but also for those who would vacation there, but do not because of a lack of access (Barrett, 2016).

Similar initiatives are happening all over the country, with the Connect America Fund, Phase II program leading the charge. The program offers subsidies to Internet Service Providers who agree to build broadband infrastructure in geographic areas they might otherwise lose money. Internet Service Providers need to guarantee they will provide a certain level of speed, usage, and competitive pricing (Federal Communications Commission, 2016a). Figure 1 best represents the extent of the Federal Communications Commission’s funding initiatives through the Connect America Fund, Phase II program.

FIGURE 1

The Federal Communications Commission’s representation of where they provide subsidies through their Connect America Fund, Phase II program. Darker areas denote some level of funding. Taken from: Federal Communications Commission (2015).



In the Executive Summary of “Connecting America: The National Broadband Plan,” the Federal Communications Commission (2010) claims, “broadband is the great infrastructure challenge of the early 21st century” (p. xi). The Agency stresses that broadband allows for the adoption of life changing technology, and major economic benefits, suggesting that the Government can influence access by ensuring competition, allocating resources, making sure it is affordable, and reforming laws in areas where broadband has a specific effect on Government services (e.g., public education and Government operations; Federal Communications Commission, 2010).

Conclusion

Going back to Toyama’s (2016) definition of the Law of Amplification, while increased broadband access has the potential to increase social and economic inequalities throughout the

United States, it also has the potential to amplify the extent to which individuals take advantage of tools at their disposal. With Net Neutrality protected by the national Government, subsidies available for the creation of broadband infrastructure in rural areas, and literacy programs popping up throughout the United States, we could be entering a new era of social and economic mobility. However, this will not come easy. Support for programs that increase access to broadband services need to be consistently nurtured. As President Obama argued in a speech from 2011:

We have to do everything we can to encourage the entrepreneurial spirit, wherever we can find it. We should be helping American companies compete and sell their products all over the world. We should be making it easier and faster to turn new ideas into new jobs and new businesses. And we should knock down any barriers that stand in the way. Because if we're going to create jobs now and in the future, we're going to have to out-build and out-educate and out-innovate every other country on Earth.

This means continuing to build infrastructure that works for all Americans. Access to the internet is the best tool we have to help level the playing field. To continue succeeding, we need to continue imagining the potential of new infrastructure-related initiatives like expanded broadband. Beyond that, we need to invest in programs that promote digital literacy and increased usage. Coming together and working to build a system that works for more people is the best chance we have of helping Americans escape many of the brutal inequalities that hold them back.

References

- Barrett, R. (2016). Rural Wisconsin pushes for faster internet. *Milwaukee Journal Sentinel*. Retrieved from <http://www.jsonline.com/story/money/2016/11/18/rural-wisconsin-pushes-faster-internet/93656270/>
- Bertot, J. C., Real, B., & Jaeger, P. T. (2016). Public libraries building digital inclusive communities: Data and findings from the 2013 digital inclusion survey. *Library Quarterly: Information, Community, Policy*, 86(3).
- Federal Communications Commission. (2015). Connect America fund phase II: Accepted areas map. Retrieved from <https://www.fcc.gov/reports-research/maps/caf-2-accepted-map/>
- Federal Communications Commission. (2016a). Connect America fund phase II FAQs. Retrieved from <https://www.fcc.gov/consumers/guides/connect-america-fund-phase-ii-faqs>
- Federal Communications Commission. (2010). Connecting America: The national broadband plan. *Federal Communications Commission*. Retrieved from <https://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf>
- Federal Communications Commission. (2016b). Open Internet. Retrieved from <https://www.fcc.gov/general/open-internet>
- Federal Communications Commission. (n.d.). Types of broadband connections. *Federal Communications Commission*. Retrieved from http://www.broadband.gov/broadband_types.html
- Haight, M., Quan-Hasse, A., & Corbett, B. (2014). Revisiting the digital divide in Canada: The impact of demographic factors on access to the internet, level of online activity, and social networking site usage. *Information, Communication & Society*, 17(4).

Internet Live Stats. (2016). United States Internet users. Retrieved from

<http://www.internetlivestats.com/internet-users/us/>

Leiner, B. M., Cerf, V. G., Clark, D. D., Kahn, R. E., Kleinrock, L., Lynch, D. C., Postel, J.,

Roberts, L. G., Wolff, S. (2012). Brief history of the internet. *Internet Society*. Retrieved from <http://www.internetsociety.org/brief-history-internet>

Micheli, M. (2016). Social networking sites and low-income teenagers: Between opportunity and inequality. *Information, Communication & Society*, 19(5).

Obama, B. (2011). Remarks by the President at signing of the America Invents Act. *The White House: Office of the Press Secretary*. Retrieved from <https://www.whitehouse.gov/the-press-office/2011/09/16/remarks-president-signing-america-invents-act>

Papacharissi, Z., & Zaks, A. (2006). Is broadband the future? An analysis of broadband technology potential and diffusion. *Telecommunications Policy*, 30, 64-75.

Picot, A., & Wernick, C. (2007). The role of government in broadband access.

Telecommunications Policy, 31, 660-674.

Richie, C. (2015). Digital inclusion. *Journal of Housing & Community Development*, 72(4).

Toyama, K. (2016). Global computing: The internet and inequality. *Communications of the ACM*, 59(4).

Trujillo, M. (2016). FCC approves internet subsidies for the poor. *The Hill*. Retrieved from <http://thehill.com/policy/technology/274835-fcc-approves-internet-subsidies-for-poor>

Van Deursen, A., & van Dijk, J. (2015). Toward a multifaceted model of internet access for understanding digital divides: An empirical investigation. *The Information Society*, 31(5).

Warf, B. (2012). Contemporary digital divides in the United States. *Journal of Economic and Social Geography*, 104(1), 1-17.

Warren, E. [Senator Elizabeth Warren]. (2013). *Full Speech - Sen. Warren on the shutdown and why government matters*. [Video file]. Retrieved from <https://www.youtube.com/watch?v=EJNvVFo25Io>

The White House. (2016). Net neutrality: President Obama's plan for free and open internet. Retrieved from <https://www.whitehouse.gov/net-neutrality>

Willis, S., & Tranter, B. (2006). Beyond the 'digital divide': Internet diffusion and inequality in Australia." *Journal of Sociology*, 41(1).