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Strategies and Recommendations for Promoting Digital Inclusion

Consumer and Governmental Affairs Bureau

Federal Communications Commission

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I. INTRODUCTION

A fundamental principle underlying the work of the Federal Communications Commission (FCC or Commission) is that "[a]ccessing the Internet has become a prerequisite to full and meaningful participation in society."[1] Indeed, broadband has transformed how Americans manage their lives, conduct business, and engage in civil discourse. With broadband, one can gain access to healthcare, education, employment, art and entertainment. Unfortunately, despite the benefits that flow from being online, many Americans do not have broadband Internet access. Among those who remain offline, affordability has been consistently cited as the primary barrier to broadband adoption.[2] To address this reality, the Commission adopted reforms to its Lifeline program to make broadband more affordable for low-income Americans. For the first time, consumers will be able to apply their monthly Lifeline support to standalone broadband and bundled voice and data services.[3]

Still, while cost is a major barrier, there are many other factors that contribute to non-adoption. The *2016 Lifeline Modernization Order* recognizes that non-price barriers to digital inclusion,[4] like lack of digital literacy and perceived relevance, also play roles in keeping many low-income consumers offline.[5] Thus, the Order directed the Consumer and Governmental Affairs Bureau (CGB or the Bureau) to develop this plan for the Commission to better understand these barriers to digital inclusion and to examine how the FCC can facilitate ongoing efforts to address them.

With this plan, several of the following goals laid out in the *2016 Lifeline Modernization Order* are or can be realized. First, this plan marks another step in the Commission's efforts to better understand non-price barriers to digital inclusion and to facilitate existing and forthcoming efforts addressing them. This plan also seeks to promote and highlight digital inclusion initiatives generally and those that leverage the modernized Lifeline program to bring broadband access to more Americans. In this regard, the Bureau has taken into account recent research from experts and builds upon earlier efforts by the Commission to study the impact of digital inclusion initiatives.

Second, this plan explores how the Bureau can engage consumer groups, community groups, philanthropic organizations, local governments, and corporations to increase broadband adoption and digital literacy among those who remain offline. At present, many efforts exist to provide individuals and families with affordable service, equipment, digital literacy training, and relevant programming. In Section III below, we present strategies digital inclusion stakeholders are executing in order to be most effective and highlight many of those efforts. For example, we highlight efforts to tailor digital inclusion programs to the individuals' interests, cultural realities,

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[1] *Lifeline and Link Up Reform and Modernization et al.*, Third Report and Order, Further Report and Order, and Order on Reconsideration, 31 FCC Rcd 3962, 3963, para. 1 (2016) (*2016 Lifeline Modernization Order*).
[2] *See 2016 Lifeline Modernization Order*, 31 FCC Rcd at 4102, para. 380; John Horrigan and Maeve Duggan, Pew Research Center, Home Broadband 2015 at 4 (2015), http://www.pewinternet.org/files/2015/12/Broadband-adoption-full.pdf (Pew Home Broadband Study).
[3] *2016 Lifeline Modernization Order*, 31 FCC Rcd. at 4102.
[4] *See* Definition of Digital Inclusion *infra* Section II (A).
[5] *2016 Lifeline Modernization Order*, 31 FCC Rcd. at 4102, para 380.

and experiences in both rural and urban areas. We also spotlight programs that seek to co-locate digital inclusion programs with other services and programs used by low-income consumers and highlight efforts by trusted community partners to leverage philanthropic and corporate resources to bring affordable equipment and services to low-income consumers. Going forward, we encourage connecting these efforts, through coalition building and regular meetings, so that parties can more effectively work together to deliver comprehensive digital inclusion assistance to communities. Accordingly, in Section IV, we make recommendations for how the Commission can facilitate digital inclusion initiatives through outreach to consumers and stakeholders to educate them about uses for broadband and available resources, like existing programs that may complement or facilitate their work. We also identify partnerships with other federal agencies and local governments that may help public and private stakeholders better assist local communities. Finally, we suggest policy innovations that make the broadband marketplace more transparent and affordable for low-income households and more amendable to promoting digital inclusion in addition to broadband access and adoption.

II. BACKGROUND: FRAMING DIGITAL INCLUSION

A. DEFINITIONS

In order to achieve digital inclusion, we need to first define the term. For the purposes of this plan, we rely largely on the definitions provided by the National Digital Inclusion Alliance (NDIA), a coalition of community organizations, public libraries, local governments, and non-profits that works to develop and empower local broadband adoption programs. NDIA defines "digital inclusion" as:

> [T]he activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and use of Information and Communication Technology [ICT]. This includes five elements: 1) affordable, robust broadband Internet service; 2) Internet-enabled devices that meet the needs of the user[6]; 3) access to digital literacy training; 4) quality technical support; and 5) applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration.[7]

Furthermore, NDIA aptly notes that "[d]igital inclusion must evolve as technology advances and recognizes that access to and use of ICTs is an essential element for participation in our society, democracy and economy." Thus, standards for what constitutes robust broadband service, devices that meet the needs of users, sufficient digital literacy training, and quality technical support will change as ICT capabilities evolve. Moreover, as technologies improve, the baseline for what constitutes "digital inclusion" necessarily increases.

In a broader context, the Bureau believes that the need for "digital equity" arises and necessarily becomes an area of focus. According to NDIA:

> Digital equity is the ultimate outcome of full digital inclusion, with focused action and investments to eliminate historical, systemic and structural barriers that perpetuate disadvantaged individuals and communities. Digital equity recognizes our moral

[6] In this regard, we note that "devices that meet the needs of the user" necessarily include devices that are accessible to people with physical and cognitive disabilities.

[7] National Digital Inclusion Alliance, *Definitions*, http://www.digitalinclusionalliance.org/definitions/ (last visited Dec. 7, 2016) (NDIA Digital Inclusion Definition).

obligation to harness ICT to address the needs of disadvantaged individuals, as well as communities or neighborhoods, community-based organizations and small businesses.[8]

There is a cyclical relationship between lack of access to technology and inequality. Structural inequality, such has housing discrimination and discriminatory credit and lending practices gave way to segregated, underserved communities and facilitated disparate broadband deployment in high- and low-income areas as well as unequal access to technology.[9] Given its ubiquity and fundamental role in realizing economic opportunity and social inclusion, technology or the lack thereof, can also operate as a force for perpetuating, and even exacerbating, inequality.[10] Against this backdrop, promoting equal opportunities for all Americans to access and use broadband in a meaningful and effective manner would inevitably include addressing the elimination of the historical, systemic, and structural forces that create and sustain disadvantaged communities.

In recognizing the need to work towards digital equity, incorporating NDIA's definitions, and submitting this plan, CGB presents a plan designed to build the FCC's digital literacy capacity in accordance with the *2016 Lifeline Modernization Order*, keep abreast of developments in digital inclusion, and gain a deeper understanding of how the Commission's rules, policies, and programs may promote or inhibit advances in digital inclusion and digital equity.

B. Defining the Problem

Having broadband at home is crucial for participation in the digital economy. Yet, 64.5 million people in the United States are without high speed broadband connectivity.[11] Americans with the lowest incomes are most likely to go without broadband at home. Indeed, only 41 percent of adults with annual incomes below $20,000 have home broadband service compared with 90 percent of adults with incomes over $100,000 per year.[12]

Additionally, Americans who are more likely to have low socioeconomic statuses due to historical and systemic barriers to education, opportunity, and adequate housing are least likely to have home broadband connectivity.[13] According to the Pew Research Center, 54 percent of

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[8] *Id*.

[9] *See generally* S. Derek Turner, Free Press, Digital Denied: The Impact of Systemic Racial Discrimination on Home-Internet Adoption (2016), http://www.freepress.net/sites/default/files/resources/digital_denied_free_press_report_december_2016.pdf (finding that systemic racial discrimination, such as discriminatory housing policies, credit and lending practices, exacerbate market failures in the broadband market, leading to lower rates of adoption among racial and ethnic minorities, even when controlling for income) (Digital Denied Report).

[10] *See* David Rottman, *Technology and Inequality,* MIT Business Review (Oct. 21, 2014), https://www.technologyreview.com/s/531726/technology-and-inequality/.

[11] *See 2016 Lifeline Modernization Order*, 31 FCC Rcd. at 3963, para. 2.

[12] Pew Home Broadband Study at 8.

[13] *See generally* American Psychological Association, *Ethnic and Racial Minorities & Socioeconomic Status*, https://www.apa.org/pi/ses/resources/publications/minorities.aspx (last visited Dec. 22, 2016) (stating "[Socioeconomic status] and race and ethnicity are intimately intertwined. Research has shown that race and ethnicity in terms of stratification often determine a person's socioeconomic status…Furthermore, communities are often segregated by [socioeconomic status], race, and ethnicity. These communities commonly share characteristics of developing nations: low economic development, poor health conditions, and low levels of educational attainment); *see also* Dedrick Asante-Muhammad, Chuck Collins, Josh Hoxie, and Emanuel Nieves, Institute for Policy Studies, Corporation for Enterprise Development, The Ever Growing Gap: Without Change, African-American and Latino Families Won't Match White Wealth for Centuries at 7-10 (2016), http://www.ips-dc.org/wp-

African-Americans and 50 percent of Hispanics subscribe to a home broadband service, compared with 72 percent of White Americans.[14] A rural-urban divide persists as well – 55 percent of those living in rural areas subscribe to broadband at home versus 67 percent of adults in urban areas and 70 percent of adults in suburban areas.[15] Further, people with disabilities and older adults are also more likely to go without a home broadband subscription. Only 45 percent of adults aged 65 and older and 49 percent of people with disabilities have home broadband service.[16]

Perhaps one of the starkest divides in broadband access and adoption exists in Indian Country, where broadband is often unavailable. Forty-one percent of Americans living on Tribal lands do not have access to fixed advanced telecommunications capability, which is defined as 25 Mbps for downloads and 3 Mbps for uploads.[17] The problem is more exacerbated on rural Tribal lands, where more than 68 percent of residents do not have access.[18]

While individuals who do not subscribe to Internet access cite cost as the primary barrier,[19] other factors also contribute to non-adoption, including lack of digital literacy and perceived relevance. In addition to cost, non-adopters cite several reasons for not subscribing to broadband at home. Some believe they do not need broadband at home because they can access the Internet elsewhere or because their smartphones are sufficient for going online.[20] Others point to the unavailability of service or slow speeds.[21]

All the while, a majority of these individuals recognize that they are at a disadvantage without broadband. Among those who have not adopted broadband at home, 65 percent of households believe not having service puts them at a disadvantage in at least one of the following five respects: discovering job opportunities or learning new skills; finding or accessing government services; discovering new things that may improve their lives; accessing health information; and following news and information.[22] Also notably, more non-adopters felt going

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content/uploads/2016/08/The-Ever-Growing-Gap-CFED_IPS-Final-2.pdf (finding that discriminatory practices such as housing segregation, employment discrimination, and discrimination in the criminal justice system lead to lower incomes and generational wealth for African-Americans and Latinos and that Native American and Asian American Pacific Islander households face similar challenges); *see also* Pew Home Broadband Study at 8 (showing lowest broadband adoption rates among African-American and Hispanic households).

[14] Pew Home Broadband Study at 8.

[15] *Id*.

[16] Pew Home Broadband Study at 8; National Telecommunications & Information Administration, *Digital Nation Data Explorer* (Oct. 27, 2016), https://www.ntia.doc.gov/data/digital-nation-data-explorer#sel=internetUser&disp=map.

[17] *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 15-191, 2016 Broadband Progress Report, 31 FCC Rcd 699, 731-732, para. 79 (2016).

[18] *Id*.

[19] According to Pew Research Center, 66 percent of broadband non-adopters cite either the monthly cost of services or the cost of a computer as a barrier to adoption. *See* Pew Home Broadband Study at 15.

[20] Pew Home Broadband Study at 15.

[21] Twenty-three percent of non-broadband user respondents to the Pew Home Broadband Study indicated that they did not have broadband at home because service was not available or the speed offered was unacceptable. Pew Home Broadband Study at 15.

[22] Pew Home Broadband Study at 15.

without broadband at home was a major disadvantage in 2015 than in 2010, which suggests that broadband has become increasingly essential for everyday life.[23]

A notable number of Americans are relying on mobile broadband to go online as well. According to Pew Research Center, 64 percent of American adults own a smartphone and 19 percent of Americans rely on their smartphones to go online and access information about healthcare, employment, education and government services. Many of the same groups who are less likely to have a wired home broadband connection, such as African-Americans, Hispanics, and those earning low incomes, are more likely to rely on their smartphones to access the Internet.[24] Having a mobile broadband connection is clearly beneficial, and is certainly better than having no connection at all.[25] Mobile broadband use can also facilitate familiarity and comfort with digital tools and the Internet. While mindful of these benefits, we nonetheless note that there are limitations on what one can accomplish online that are inherent to the way mobile broadband is typically offered and utilized.[26] For instance, mobile broadband generally comes with slower speeds and lower data caps than what is offered outside of the mobile broadband context. In addition, mobile connections typically can only be used by one person at a time and are often found to be insufficient for activities that require word-processing or multi-tasking.[27]

Beyond access and adoption, digital readiness, or digital literacy, also can be a barrier to inclusion. Digital readiness refers to an individual's comfort level and preparedness in using technology and navigating online spaces. In 2016, the Pew Research Center released a report that evaluated American adults' digital readiness according to five factors: confidence in using computers; ease of getting new technology to work; use of digital tools for learning; ability to determine trustworthiness of online information; and familiarity with "education tech" terms.[28] Just as with digital adoption, minorities, older adults, those with less formal education, those in rural areas, and those earning low incomes are least likely to be "digitally ready."[29]

Being equipped with the skills to navigate and utilize the Internet are critical for meaningful broadband adoption. If individuals cannot take advantage of the resources the Internet has to offer, having a connection at home still will not yield its full benefits and value. Moreover, as networks and technology become more ubiquitous, digital literacy will be required for full inclusion into society.[30] Thus, efforts to spur broadband adoption should include initiatives to establish and maintain digital literacy.

While the main thrust of this plan concerns strategies for addressing non-cost barriers to broadband adoption, the Bureau is mindful of the reality that affordability significantly impacts

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[23] Pew Home Broadband Study at 13-14.
[24] *See Id*.
[25] The *2016 Lifeline Modernization Order* recognizes the benefits and tradeoffs of mobile broadband adoption and its role as a key entry point to the Internet for new adopters and therefore, the Commission empowers consumers to choose which service to apply Lifeline support towards. *2016 Lifeline Modernization Order*, 31 FCC Rcd. at 3980-81, para. 50.
[26] Pew Home Broadband Study at 3.
[27] *Id*.
[28] John Horrigan, Dana Page, and Lee Rainie, Pew Research Center, Digital Readiness Gaps at 2 (2016), http://www.pewinternet.org/2016/09/20/digital-readiness-gaps/ (Pew Digital Readiness Gaps).
[29] Pew Digital Readiness Gaps at 3.
[30] *See* Colin Rhinesmith, Benton Foundation, *Digital Literacy and Inclusion: We Are All In it Together* (Feb. 22, 2016), https://www.benton.org/blog/digital-literacy-and-inclusion-we-are-all-it-together.

whether low-income individuals and families who are not online will opt to go online.[31] To this end, efforts to address non-cost barriers will be most effective and successful if those currently offline have affordable options for getting online. Consequently, the Commission's modernization of the Lifeline program to allow support for broadband is a critical component of its efforts to promote digital inclusion. In addition to making broadband a supported service under Lifeline, the Commission has also made it easier for Internet service providers (ISPs) to become Lifeline Broadband Providers (LBPs), thereby promoting market entry and a competitive Lifeline broadband market with lower prices and quality service.[32]

C. WHY BROADBAND ADOPTION MATTERS

The *2016 Lifeline Modernization Order* was adopted because of the critical importance of broadband for American consumers. As the Order explained, broadband enables access to "education, meaningful employment, and reliable healthcare."[33] The Commission has also recognized that broadband plays an important role in supporting the economy, accessing entertainment, networking and community building, and facilitating civic engagement.[34] The Commission acknowledges that to take full advantage of these benefits, consumers require not just an affordable service, but full digital inclusion as defined in Section II above.

The benefits that flow from home broadband adoption are meaningful for all. However, broadband can be especially transformative for those least likely to adopt. For instance, broadband adoption can play critical roles in the lives of low-income Americans, people with disabilities, and minorities. Beyond making it easier to search and apply for jobs, the web provides a platform for low-income Americans to create additional revenue streams through e-commerce.[35] Broadband technologies can also enable people with certain disabilities to live more independently.[36] Finally, affordable access to broadband and the skills to use digital tools can enable minorities who are underrepresented in politics and in the media to organize their political interests and to counter mainstream media misrepresentations.[37] In Indian Country, where Native Americans face some of the starkest disparities in access to healthcare, economic development, and education, broadband presents a remarkable opportunity.[38] Access to the Internet and technology give those living on remote reservations the means to take online classes, reach

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[31] Digital Denied Report at 84-87; Pew Home Broadband Study at 4.
[32] *2016 Lifeline Modernization Order*, 31 FCC Rcd at 4065. Relatedly, to the extent that ISPs are incentivized to become LBPs at increasing levels, it is anticipated that there will be a significant positive impact on broadband adoption and digital inclusion. An increased number of LBPs will increase the availability of Lifeline supported broadband, which may have positive impacts on broadband adoption and digital inclusion as more people are able to access the Internet, realize its relevance, and build digital skills.
[33] *2016 Lifeline Modernization Order*, 31 FCC Rcd at 3966.
[34] *See Protecting and Promoting the Open Internet*, Report and Order on Remand, Declaratory Ruling, and Order, 30 FCC Rcd. 5601, 5603 (2015).
[35] Etsy Comments, GN Docket 14-28 at 3-4 (Jul. 8, 2014).
[36] FCC, Individuals with Cognitive Disabilities: Barriers to and Solutions for Accessible Information and Communication Technologies at 5 (2016), https://apps.fcc.gov/edocs_public/attachmatch/DOC-341628A1.pdf.
[37] *See* Common Cause Comments, WC Docket 11-42 at 11 (Aug. 27, 2015); *see also* Victoria M. Massie, Comedian Franchesca Ramsey breaks down why digital media is so important for creators of color, VOX, (Sep. 6, 2016), http://www.vox.com/2016/9/7/12816538/franchesca-ramsey-youtube.
[38] *See Promoting Broadband Infrastructure Investments Before the S. Comm. On Commc'n. & Tech.*, 114th Cong. 1-2 (2015) (statement of The Honorable Stephen Roe Lewis, Governor, Gila River Indian Community, Arizona).

doctors and nurses, and preserve native languages and rituals.[39] Thus, broadband adoption measures are important not just because they can get more Americans online and participating in the digital economy, but because they can help those who need help the most.

D. History of Federal Broadband Access and Adoption Efforts

1. Lifeline

Universal service to the nation's communications networks has been a stated goal for Congress and the Commission since the Communications Act was enacted in 1934. The Act states that one purpose of the Commission is to, "make available, so far as possible, to all the people of the United States… a rapid, efficient, nation-wide, and world-wide wire and radio communications service with adequate facilities at reasonable charges."[40]

In service of this goal, the Commission began offering support for low-income telephone consumers in 1985, following the break-up of AT&T's Bell system. The Commission recognized that landline telephony had "become crucial to full participation in our society and economy…" Thus, the Commission created the Lifeline program to ensure that as the country's phone network transitioned away from monopoly, consumers were not forced to discontinue service if they could not afford newly introduced subscriber line charges.[41]

Eleven years later came the Telecommunications Act of 1996, which was the first major re-write of the Communications Act of 1934. In addition to codifying the Commission's commitment to advancing telecommunications service to every household, Congress expressed services should be available at "affordable" rates and that "consumers in all regions of the nation, including low-income consumers…should have access to telecommunications and information services."[42] With the 1996 Act, Congress also recognized that universal service was an evolving concept and that new, not yet ubiquitous technologies other than landline telephony could provide telecommunications services to consumers.[43]

In 2005, the Commission updated the Lifeline program to provide support for mobile voice services. Then in 2008, the program was again expanded to permit participation by prepaid wireless service resellers.[44] These updates were adopted in acknowledgment of the evolving modes through which Americans were communicating with one another. The further evolution of the communications marketplace into one in which Americans increasingly rely on broadband Internet for information gathering and two-way communications compelled the Commission to again reexamine which services would be supported under the Lifeline program—bringing us to the March 2016 *Lifeline Modernization Order* which called for this plan.

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[39] *See* Gerry Smith, *On Tribal Lands, Digital Divide Brings New Form of Isolation*, The Huffington Post, (Apr. 23, 2012), http://www.huffingtonpost.com/2012/04/20/digital-divide-tribal-lands_n_1403046.html.
[40] 47 U.S.C. § 151 (creating the Federal Communications Commission).
[41] *2016 Lifeline Modernization Order* para. 23
[42] *See* 47 U.S.C. § 254(b)(1),(3); *see also* 47 U.S.C. § 151.
[43] *See 2016 Lifeline Modernization Order*, 31 FCC Rcd. at 3970, para. 24.
[44] *See Petition of TracFone Wireless, Inc. for Forbearance*, Order, 20 FCC Rcd 15095 (2005) (*TracFone Forbearance Order*); *TracFone Wireless, Inc.*, *Petition for Designation as an Eligible Telecommunications Carrier in New York et al.*, Order, 23 FCC Rcd 6206 (2008).

2. THE NATIONAL BROADBAND PLAN

Congress, in 2009, passed the American Recovery and Reinvestment Act. The Recovery Act was designed "to rescue a rapidly deteriorating economy; put the country on a path to recovery by putting Americans back to work quickly; and reinvest in the country's long-term economic future."[45] Investments in broadband access and infrastructure were deemed critical to the nation's recovery.

Under the Recovery Act, the Commission was directed to develop a National Broadband Plan to examine how the Commission and others could facilitate the acceleration of the availability, adoption, and utilization of broadband throughout the United States.[46] The plan was to include "a detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public."[47]

To address cost barriers to adoption, the National Broadband Plan recommended that the Commission implement a low-income pilot program to generate high-quality data about how best to design efficient and effective long-term broadband support mechanisms for low-income consumers within the Lifeline program. This recommendation motivated a directive to create such a pilot program, which was included in the Commission's *2012 Lifeline Reform Order*. Pursuant to that directive, the Wireline Competition Bureau issued a staff report concluding that reforming Lifeline to support broadband service could have an impact in closing the broadband adoption gap—laying the foundation for the Commission's adoption of the *2016 Modernization Order*. Also related to the *2016 Modernization Order*, and more specifically the directive to create this plan, the National Broadband Plan also recommended that the Commission promote broadband adoption by increasing its efforts related to digital literacy and digital inclusion.

3. THE BROADBAND TECHNOLOGY OPPORTUNITIES PROGRAM

Beyond mandating the National Broadband Plan, the Recovery Act also appropriated $7.2 billion to fund programs to promote broadband adoption and deployment. The National Telecommunications and Information Administration (NTIA) was directed to use $4.7 billion of these funds to establish the Broadband Technology Opportunities Program (BTOP).[48] Through BTOP, NTIA was charged with expanding access to broadband services, providing broadband access, training and support to schools, libraries, and health care facilities, and other organizations; improving broadband access to public safety agencies; and stimulating demand for broadband. $251 million was made available specifically for programs that promoted broadband adoption. This marked the federal government's first significant capital investment in digital inclusion.

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[45] The White House, The Recovery Act: Transforming the American Economy through Innovation at 1 (2010), https://www.whitehouse.gov/sites/default/files/uploads/Recovery_Act_Innovation.pdf.

[46] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, Title VI, § 6001(k)(2)(D), 123 Stat. 115, 516 (2009).

[47] FCC, Connecting America: The National Broadband Plan (2010), http://www.broadband.gov/plan (National Broadband Plan).

[48] Press Release, National Telecommunications and Information Administration, Commerce Department's NTIA and USDA's RUS Announce Availability of $4.8 Billion in Recovery Act Funding to Bring Broadband to More Americans (Jan. 15, 2010), https://www.ntia.doc.gov/press-release/2010/commerce-departments-ntia-and-usdas-rus-announce-availability-48-billion-recovery.

To date, NTIA has invested in 123 infrastructure projects totaling $3.5 billion; 56 State Broadband Initiative (SBI) projects totaling $293 million; 66 Public Computer Center (PCC) projects totaling $201 million; and 44 Sustainable Broadband Adoption (SBA) projects, totaling $251 million.[49] Grantees included non-profit organizations, libraries, universities, state and local governments, and public-private initiatives. As of March 31, 2016, five projects remained in active status—four public safety grants and one Comprehensive Community Infrastructure award that tracks the deployment of new and upgraded network miles. Other projects, including many of the SBA programs, have continued operations through support from government funding or grants from non-profit philanthropic organizations.

To track BTOP grantees' progress and gather lessons learned, NTIA contracted with ASR Analytics to evaluate grantee programs.[50] In a final report, ASR noted that according to self-reported results, PCC and SBA BTOP projects had the most impact in four areas: increasing political engagement and civic participation; improving social connections; increasing volunteerism; and obtaining legal rights and privileges. [51] BTOP was in large part successful in advancing the goals laid out in the Recovery Act, but since its conclusion funding gaps remain as do gaps in broadband adoption. Thus, in this plan the Bureau will include specific recommendations for how government agencies, philanthropic organizations, and industry can address the funding gaps left by BTOP's absence.

The Bureau also notes that NTIA's work continues pursuant to a major infrastructure-related initiative, BroadbandUSA, which assists local and Tribal governments that want to expand the availability of broadband in their areas and promote adoption. Through the Community Connectivity Initiative, NTIA is providing local and Tribal governments with resources like a self-assessment tool, planning frameworks, government funding toolkits, program models, and technical assistance related to creating a broadband roadmap for their respective localities.[52] NTIA's efforts serve as a useful complement to the strategies and recommendations identified herein.

III. SUCCESSFUL STRATEGIES AND INNOVATIVE APPROACHES

There are dozens of federal agencies, state and local governments, digital inclusion organizations, and community organizations working in low-income communities to bring affordable broadband service, equipment, training, and resources to those in need. The work of those institutions and organizations can inform the work of others going forward. Below we highlight several strategies that have made promising strides in different regions across the country and also include examples of their successful implementation.

- *Make basic literacy a forethought in digital literacy and digital inclusion curricula and include literacy stakeholders in broadband adoption and digital inclusion planning.*

[49] National Telecommunications and Information Administration, Broadband Technology Opportunities Program Quarterly Program Status Report at 1 (2016), https://www.ntia.doc.gov/files/ntia/publications/ntia_btop_29th_qtrly_report.pdf.
[50] *See generally* ASR Analytics, Final Report: Social and Economic Impacts of the Broadband Technology Opportunities Program (2014), http://www2.ntia.doc.gov/files/asr_final_report.pdf.
[51] *Id*. at 25-26.
[52] *See generally*, National Telecommunications & Information Administration, *Broadband USA: Connecting America's Communities*, http://www2.ntia.doc.gov/ (last visited Dec. 20, 2016).

Basic literacy is essential to digital literacy and vice versa; the two skills synergize one another and enable children and adults to get more out of learning online.[53] However, according to one estimate, 17 percent of American adults have limited reading comprehension abilities,[54] thereby complicating gaps in digital readiness. The Department of Education's Organization for Economic Cooperation and Development (OECD) highlights the links between basic literacy, digital skills, jobs and wages in its 2015 report analyzing the Program for the International Assessment of Adult Competencies (PIAAC) Survey of Adult Skills—and reveals why digital inclusion efforts should reinforce basic literacy concepts and why basic literacy courses should incorporate digital literacy as well.[55]

The Survey of Adult Skills provides a unique, direct measure of what youths and adults can actually do with technology and how those skills are associated with a host of other quality of life indicators. The assessment, called "problem solving in a technology-rich environment," or PSTRE, is administered along with assessments of literacy and numeracy, and an extensive background questionnaire that probes individuals' educational history, employment and earnings history, use of skills at work and in everyday life, self-reported health and wellness behaviors, home language and nativity, and parents' educational background (used as a proxy for socio-economic status).[56]

Results from the U.S. data showed overall performance on the digital skills assessment was lower than the international average.[57] When looking deeper, that low performance is particularly troubling for several demographic groups. Adults not born in the U.S., minority populations, those with low literacy and/or numeracy, seniors, and those diagnosed with a learning disability had significantly lower performance profiles than the strongest U.S. performers.[58] For instance, 44 percent of those aged 66-74 scored below level 1, meaning they displayed minimal proficiency in completing digital tasks, compared with only 16 percent of young adults (aged 16-34),[59] 33 percent of African-American young adults and 25 percent of

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[53] *See* Letter from Larra Clark, Deputy Director, Office for Information Technology Policy, American Library Association, to Lauren M. Wilson, Legal Advisor, Consumer and Governmental Affairs Bureau, FCC, WC Docket No. 11-42, at 2 (filed Sep. 1, 2016) (ALA *Ex Parte*).

[54] *See* U.S. Department of Education, Skills of U.S. Unemployed, Young, and Older Adults in Sharper Focus: Results from the Program for the International Assessment of Adult Competencies (PIAAC) 2012/2014 at 11 (2016), https://nces.ed.gov/pubs2016/2016039.pdf (Skills in Sharper Focus Report).

[55] The PIAAC survey is coordinated internationally by the OECD. Results were first released in October 2013. It is a household survey administered to a nationally-representative sample of adults, ages 16 through 65, in each country, in the official language(s), and in most cases, in respondents' homes on a laptop computer. In the United States, the survey was first administered in 2012 and additional results, based on an expanded sample, were released in 2015-2016. While the cognitive tests were administered only in English, the background questionnaire was administered in English and Spanish. *See* OECD, Adults, Computers and Problem Solving: What's the Problem? at 167 (2015), http://dx.doi.org/10.1787/9789264236844-en (Adults, Computers and Problem Solving).

[56] The PSTRE assessment is designed to simulate common challenges such as conducting and evaluating web searches, using an email client to coordinate schedules, and use of a spreadsheet program to perform calculations. Proficiency is scored in three levels, with additional categories of performance indicating below level 1 skills, those who reported no computer experience, those that failed the simple digital literacy screener, and those that chose not to take the full assessment on computer.

[57] *See* Skills in Sharper Focus Report at 9 (The chart shows that for adults age 16-65, the PIAAC international average score on the PSTRE portion of the survey was 283. The U.S. score was 274).

[58] *See* Skills in Sharper Focus Report at 4 (2016).

[59] Skills in Sharper Focus Report at 18 (2016).

Hispanic young adults scored below level 1 compared with only 10 percent of white young adults.[60]

The correlation of literacy and numeracy performance with performance on the PSTRE assessment is clear. As literacy or numeracy rises, so does proficiency with digital problem solving. Only in the oldest cohort do these proficiencies not map as closely to one another. Participating in education and training is also associated with greater digital skills and computer familiarity.[61] These data indicate the importance of policies and programs that help families gain access to the Internet and devices and the convenient availability of education and training that helps adults improve their basic and workforce preparation skills, including literacy and problem solving. The link between basic literacy and digital literacy also highlights the central role public libraries play in promoting digital inclusion.[62] Libraries provide free access to books, computing, adult learning, and digital literacy training—all under one roof.[63] Also importantly, libraries are a place where members of a community may gather and meet other people with similar interests and similar needs, thus providing a key social support system that bolsters learning online and offline.[64]

Example: Literacy KC in Kansas City, Missouri fuses digital literacy training with basic literacy tutoring for adults and families, most of whom are low-income minorities, to enhance their lives and uses a student-centered approach that is designed to meet the academic and personal goals of students.[65] Visitors to Literacy KC benefit from small classes, diverse programming, personalized tutoring, and a computer lab equipped with up-to-date devices and high-speed Internet. Instructors employ 30-40 minute "digital push-ins" to incorporate computers and digital literacy into lessons and increase students' comfort with using the Internet. A digital push-in might involve students setting up and sending an email to their teacher or learning to perform a reliable online search—the whole time completing a broader literacy lesson plan.

Through Literacy KC's Let's Read program, multiple generations of a family visit the organization for an hour each week to read together, get strategies for reading in the home, and complete fun projects. Community members then often move on the organization's Ticket to Read program for adults who want to build their literacy skills and achieve high school

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[60] Skills in Sharper Focus Report at 17 (2016).

[61] *See* Adults, Computers, and Problem Solving at 167. (In the U.S., less than two percent of adults who had participated in adult education and training in the past year reported that they had no computer use compared to 13 percent who had not participated; and 40 percent of recent adult education and training participants performed at Level 2 or 3 compared with 17 percent of those who had not.)

[62] *See generally* American Library Association, After Access: Libraries and Digital Empowerment; Building Digitally Inclusive Communities (2015), http://www.ala.org/advocacy/sites/ala.org.advocacy/files/content/ALA%20DI%20After%20Access_final_12%2017%2015.pdf (Libraries and Digital Empowerment Report).

[63] ALA *Ex Parte* at 2.

[64] Libraries and Digital Empowerment Report at 7-8.

[65] *See* Literacy KC, *Student Spotlight: Albert & His Computer*, (Nov. 10, 2016), http://literacykc.org/2016/11/10/student-spotlight-albert-his-computer/ (One Literacy KC student, Albert, signed up for Literacy KC's adult learning classes in Fall 2016 and indicated he no interest in computers at that time. After eight weeks of classroom instruction that included learning basic literacy through digital lessons, Albert was able to type more proficiently and send an email. He also acquired a newfound appreciation for the Internet and uses it to watch videos of the Kansas City Chiefs and practice his reading skills. Through a partnership with another Kansas City Organization, Connecting for Good, Albert was able to get a refurbished computer of his own to continue honing his skills.)

equivalency. Ticket to Read combines reading discussion groups, research paper workshops, and "Reading Plus," an online program that promotes gains in reading speed and accuracy while building users' vocabularies. A natural next step for some Ticket to Read students is to enroll in Literacy KC's Career Online High School (COHS), which they launched in January 2016 in partnership with the Kansas City Public Library and the Mid-Continent Public Library. Through the web platform, which is supported by a live academic coach, students can earn an accredited high school diploma and a career certificate.

In the first nine months of 2016, Literacy KC had 392 visitors to its computer labs who logged 693 digital hours. Through COHS, 30 students have been served in that same time period and two students have already earned their high school diploma.

- *Tailor digital literacy curricula to meet the needs and expectations of students and recognize that the perceived relevance of broadband adoption shifts for users based on contextual and cultural reasons.*

As discussed above, digital literacy, or digital readiness, is critical to meaningful broadband adoption. Thus, many initiatives seek to arm individuals with the tools necessary for using the Internet. Traditionally, digital literacy training has taken the form of structured group classes that teach basic skills like word processing, using email, and web surfing. More recently, practitioners have recognized that successful initiatives tie digital literacy training to content and services that are relevant to students' lives and respective cultures, and reflect their interests—even if those interests do not align with presumed best uses for broadband. As the National Broadband Plan observed:

> [T]here is an important social dimension to broadband adoption that cannot be overlooked. The primary incentive for broadband adoption is communication—two-way communication through e-mail, social networking platforms, instant messaging or video-chatting. People find broadband relevant when the communities they care about are online, exchanging information and creating content. Once online, individuals will stay online if they continue to find information and broadband applications that are useful and relevant to their lives and when people around them do the same.[66]

To appeal to individuals' interests, some practitioners have abandoned group classes in favor of personalized one-on-one training—ensuring that the curriculum is contextualized and relevant to the student.[67] Training that is responsive to individual needs should also be structured in a manner that is as least restrictive as possible. For instance, programs should not be so strict that attendance is mandatory and students should not be expected to meet certain benchmarks within a given timeframe. Additionally, when students are learning English as their second language, it is helpful to let them choose which language they would like to use for learning digital literacy. Research shows that some students prefer to learn digital literacy in English to enhance their English skills, while some prefer to learn in both languages to reinforce their English skills while ensuring they are grasping digital literacy concepts.[68] The most important

[66] National Broadband Plan at 170.
[67] Colin Rhinesmith, Digital Inclusion and Meaningful Broadband Adoption Initiatives at 19 (2016), https://www.benton.org/sites/default/files/broadbandinclusion.pdf (Meaningful Broadband Adoption Initiatives Report).
[68] Portland State University, Language Learners: Learners' Perspectives at 2 (2015) http://pdxscholar.library.pdx.edu/dla_research_briefs/14/.

takeaway for developing curricula is that sufficiently tailored digital literacy training eschews paternalism and stresses choice and mutual respect.[69]

Example: The Community Technology Network (CTN) provides digital literacy training to seniors, low-income residents, and people with disabilities in the San Francisco area. CTN recognizes that seniors respond more readily to mobile technology and, therefore, the organization does not push desktop computer use on older adults who do not want to adopt. CTN has found that mobile devices, like tablets, are a better option for those with less physical dexterity and that older adults like the convenience of being able to carry the device anywhere. Older adults also appreciated the ability to take, send, and receive pictures as well as connect with younger family members who have grown up relying on technology.[70] CTN facilitates mobile teach-in events where students can bring their own mobile devices, with which they are already comfortable, to get training from volunteer teachers at tech companies. Below is an anecdote from one CTN teach-in that highlights how the organization makes connections between its students' interests and technology to bridge the divide.

> Fred is a regular visitor to the IT Bookman Tech Lab. His interests are old westerns and music, and he frequently brings his guitar to go to a private room to practice as a break from the computer. A perfect connection formed between Fred and guitar-playing, Optimizely teach-in volunteer, Tony Caballero. They exchanged some old-fashioned, storytelling about music-making experiences. When Fred brought in his guitar and began to tune it, Tony jumped in to share a tuning app Fred can download on his phone to get the perfect C. Finding relevance is the key — in more ways than one![71]

Example: Digitability is a startup that develops online special needs curricula to teach digital skills to children with cognitive disabilities in order to prepare them to live independently and enter the workforce.[72] The startup was conceived by a special needs teacher in Philadelphia, Michelle McKeone, who hypothesized that one factor influencing underemployment among people with disabilities may be lack of digital readiness.[73] With Digitability, kids can learn digital skills through lessons that are easily digestible and appropriate for their abilities. They learn discreet tasks like inputting information into Google calendar or posting to social media using short animations and real-word simulations. Schools in Philadelphia, New Jersey, and California have all incorporated Digitability into their classrooms.[74]

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[69] *See* Seeta Pena Gangadharan & Greta Byrum, *Defining and Measuring Meaningful Broadband Adoption*, 6 INT'L J. COMM. 2601, 2603 (2012) ("Meaningful broadband adoption also moves away from moral frameworks that evaluate the uses of digital technology or that suggest some forms of adoption are "good" and others decidedly "bad."…This view of broadband adoption neglects to consider the perspective of the individuals or their needs for social fellowship, networking, and other useful skills that can emerge from the use of social media. By contrast, a research framework focused on meaningful broadband adoption seeks to understand the relevance of different broadband activities within their social context, not as evaluated according to external values.")

[70] *See* Lorna Walsh, Community Technology Network, Tapping Into the Potential of Tablets (Nov. 15, 2016), http://ctnbayarea.org/blog/tapping-potential-tablets/.

[71] Heather DeSmidt, Community Technology Network, You Have a Match! Mobile Device Teach-Ins with Tech Employees (Sep. 21, 2016), http://ctnbayarea.org/blog/match-mobile-device-teach-ins-tech-employees/.

[72] Digitability, http://digitability.com/, (last visited Dec. 9, 2016).

[73] Marguerite Reardon, *How tech means jobs ahead for kids with cognitive disabilities*, CNET, (Oct. 29, 2016), https://www.cnet.com/news/tech-opens-the-door-for-people-with-cognitive-disabilities/.

[74] *Id*.

- *Make digital literacy easily accessible to communities and co-locate classes with services that complement broadband.*

To encourage participation, successful digital literacy training should seek to "meet students where they are"—in settings that are familiar, comfortable, and close to home. Moreover, it is beneficial for training to take place in locations people already use for some other social benefit. Therefore, individuals are able to more readily appreciate how broadband access is relevant in their daily lives.

Example: Austin Free Net in Texas provides computers and digital literacy training in homeless shelters to help residents find employment and housing online. Their training programs operate out of the Austin Resource Center for the Homeless (ARCH), which provides for basic needs like personal hygiene, laundry, mail and shelter. Several other agencies are co-located within the ARCH, including the Veterans Administration, Family Eldercare[75], the Homeless Health Clinic, Goodwill Industries of Central Texas[76], Keep Austin Housed, and Austin Travis County Integral Care.[77] Thus, for homeless residents of the ARCH, access to broadband and the skills necessary for navigating the Internet are basic components of getting back on their feet.

Example: The Axiom Education and Training Center in rural Maine is an adult learning and workforce development organization that aims to make its programs as accessible as possible by embracing a "mobile model of digital literacy training." In addition to maintaining its own public access computing center, Axiom also brings its classes to locations that the public already frequents, like public libraries, local government offices, and local community organizations with open hours for public walk-ins. For example, the organization leads an adult education class in the Passamaquoddy Tribal Office in Indian Township, a Facebook for Business class at the Machias Career Center, and HiSET exam (the new alternative to the GED exam) prep classes at the Peabody Memorial Library in Jonesport. Axiom's Director of Education, Jane Blackwood, captured why this feature is crucial for underserved rural residents in an interview with digital inclusion expert and Simmons College professor Colin Rhinesmith:

> It's the grassroots approach to digital literacy—we bring the classes to the people. Our numbers are high, unusually high for a rural area. If we had held the classes here, we would not have seen the numbers. So take a rural area and what impacts education attainment? It's time, distance, and travel. And when you strip that away, and there's an Excel class going on in your downtown, at your library or town office versus an hour away, you're likely going to take that class. So I think that's what makes us very unique.[78]

- *Be mindful of privacy, security, and data storage concerns and incorporate online safety into digital literacy curricula.*

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[75] Family Eldercare provides financial literacy and money management training. *See generally* Family Eldercare, https://www.familyeldercare.org/ (last visited Dec. 7, 2016).
[76] Goodwill Industries of Central Texas is a jobs program that provides training, placement, and retention services. *See generally* Goodwill Central Texas, *https://www.goodwillcentraltexas.org/* (last visited Dec. 7, 2016).
[77] Austin Travis County Integral Care provides mental health resources to homeless individuals. *See generally* Austin Travis Country Integral Care *http://www.integralcare.org/* (last visited Dec. 7, 2016).
[78] Meaningful Broadband Adoption Initiatives Report at 19.

Because full digital inclusion calls for not just access and adoption, but the ability to meaningfully use the Internet to engage with applications and content, efforts to promote online privacy and safety have become a growing focus area within digital inclusion initiatives. Research shows that a lack of trust in Internet privacy and security may impact the extent to which Internet adopters utilize broadband.[79] In response to a survey by the Pew Research Center, 91 percent of adults agreed or strongly agreed that consumers had lost control of how companies use and collect personal information.[80] Also according to NTIA, 45 percent of online households surveyed in May 2016 reported that privacy and security concerns prevented them from engaging in e-commerce, posting on social networks, or expressing their opinions on controversial or political issues online.[81] The surveyed users' fears arose from negative online experiences involving security breaches, identity theft, or other malicious activity. The perceived risk was greatest among households with the most intensive Internet use. However, privacy concerns are likely warranted among less intensive users and those without a wired home broadband connection, namely low-income Internet users who face greater privacy risks attendant to accessing free, discounted, publicly available, or mobile-only broadband. Those risks include increased surveillance, targeting, and big-data discrimination.

Beyond facing enhanced privacy risks when going online, Internet users with low socioeconomic statuses are more likely to face challenges when attempting to address or remedy privacy issues. For instance, research has found that those with less educational attainment perform worse than those with graduate degrees when answering knowledge questions about privacy. Also, those with more education are more likely to monitor their digital footprints.[82] While marginal Internet users, including those of low socioeconomic statuses and those with less education are less likely to be fluent in online privacy speak, a study of privacy and surveillance in digital inclusion settings revealed that these same populations do express unique concerns about privacy and surveillance.[83] A field study conducted with four digital literacy organizations serving marginal Internet users found that marginal users expressed the following: low expectations of privacy coupled with high expectations of surveillance, anxiety about government surveillance, recognition of commercial surveillance, albeit with less anxiety, and a desire for a more secure Internet experience.[84] Despite these concerns, marginal users in the

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[79] *See* Rafi Goldberg, National Telecommunications and Information Administration, Lack of Trust in Internet Privacy and Security May Deter Economic and Other Online Activities (May 13, 2016), https://www.ntia.doc.gov/blog/2016/lack-trust-internet-privacy-and-security-may-deter-economic-and-other-online-activities.

[80] Lee Rainie, Pew Research Center, The state of privacy in post-Snowden America (Sep. 21, 2016),

[81] Rafi Goldberg *supra* note 80.

[82] *See* Seeta Pena Gangadharan, The downside of digital inclusion: Expectations and experiences of privacy and surveillance among marginal Internet users, NEW MEDIA AND SOCIETY (Nov. 9, 2015), http://nms.sagepub.com/content/early/2015/11/06/1461444815614053.abstract (Expectations of Privacy Among Marginal Internet Users) (citing Joseph Turow, Lauren Feldman and Kimberly Meltzer, Open to exploitation: American Shoppers online and offline (2005), http://repository.upenn.edu/cgi/viewcontent.cgi?article=1035&context=asc_papers and Pew Research Center, Public perceptions of privacy and security in the Post-Snowden era at 21 (2014), http://www.pewinternet.org/2014/11/12/public-privacy-perceptions/.)

[83] *See* Expectations of Privacy Among Marginal Internet Users at 8.

[84] *See* Expectations of Privacy Among Marginal Internet Users at 8-10.

study were unwittingly exposed to several privacy risks by virtue of using "free" services or by accessing the Internet at public computing centers.[85]

Given the harms that may await users, even while participating in digital literacy programs, practitioners should be careful to ensure that digital inclusion efforts address privacy in a meaningful way that protects vulnerable users from harm and educates them about privacy risks. The examples below show two ways in which institutions and organizations are contemplating how to educate consumers about online privacy and represent focus areas that may be ripe for exploration by other digital inclusion practitioners.

Example: The Salt Lake City Public Library's digital inclusion program, the Tech League, includes an Online Financial Safety class. The class covers awareness of ways personal information can be stolen online, how identity thieves operate, strategies for protecting yourself from online identity theft, how to know if your identity is stolen, how to monitor your financial identity, and what to do if you if your identity is stolen. Students are also taught best practices for working on public computers. For instance, the class stresses steps such as logging out of all accounts, closing browsers and being careful to make sure no one is watching as you enter login information.

Example: The Glass Room was launched during the 2016 holiday season in New York City as an installation art space sponsored by the Mozilla Foundation and Tactical Technology to teach visitors about online privacy and surveillance through interactive arts and workshops. There, people of all ages could learn how they share information about themselves on their favorite social media and shopping sites. Visitors could also attend workshops that align with what they like to do online and learn how to take more control over how they are tracked online, all while learning more about how the web works and how to navigate the Internet.

- *Tie public and private broadband adoption initiatives into existing government programs being utilized by key demographics or into federal, state, or local government oversight of ISPs.*

As discussed above, people earning the lowest incomes are the least likely to have adopted broadband at home. Thus, those without broadband are more likely to be eligible for an income-based federal benefit program. To reflect this reality, participants in several federal benefit programs qualify for Lifeline support.[86] The Commission has also made participation in certain federal benefit programs a means of qualifying for Lifeline support because it achieves efficiency in program administration. Namely, it supports reliable verification of eligibility through electronic means and ensures that those who need support are the people receiving it. Likewise, non-profit and industry stakeholders can benefit from leveraging existing federal

[85] *See* Expectations of Privacy Among Marginal Internet Users at 10. ("Contrary to characterizations by some Internet researchers that public Internet access affords individuals anonymity, users on public computer terminals are not immune to tracking. Computer terminals were configured for Web-based email, and staff taught webmail to marginal users in the classroom. Instructors advised students to always log out of Web-based email or other services at the end of a session, but not after logging into other services and platforms. As Libert…demonstrated, a permanent log-in state facilitates the creation of data profiles, such as in the case of health-related websites that unobtrusively share behavioral data (through referrer uniform resource locators [URLs]) with third parties featured on those sites (e.g. a Facebook "Like" button)") (quoting Timothy Libert, Privacy implications of health information seeking on the Web, 58 COMM. OF THE ACM 68 (2015).)

[86] *2016 Lifeline Modernization Order*, 31 FCC Rcd. at 4021, para. 167.

programs and creating public-private partnerships that serve the populations the programs hope to reach.

Beyond tapping into government programs to identify and serve individuals who would benefit from broadband adoption programs, federal, state, and local governments can use the regular oversight of ISPs to encourage the development and implementation of new broadband access and adoption initiatives. For instance, merger reviews and franchise negotiations permit regulators to assess how providers can serve the public interest by supporting broadband adoption in underserved communities.

Example: ConnectHome is a pilot initiative by the Department of Housing and Urban Development (HUD) that seeks to accelerate the adoption and utilization of broadband technology by children and families living in HUD-assisted housing. HUD aptly recognizes that broadband adoption is part and parcel of their mission to help Americans secure quality and affordable housing in order to improve quality of life and build a better future. Through the program, internet service providers, non-profits, and the private sector are offering broadband Internet service, devices, digital literacy and technical training. Twenty-eight public housing communities including one tribal nation are currently participating in the pilot.

Example: The California Emerging Technology Fund (CETF), an independent non-profit organization, was established in 2005 pursuant to the mergers of AT&T and SBC and Verizon and MCI. The California Public Utilities Commission ordered the merged companies to contribute $60 million to CETF over five years to promote broadband deployment and adoption. CETF was organized to attract matching funds from other non-profits, foundations, corporations, and government stakeholders, with a goal of raising an additional $40 million to accompany the merged entities' initial investment. CETF takes a five-pronged approach to the digital divide by (1) engaging local leaders to integrate digital inclusion into strategic plans for addressing local challenges; (2) making grants to community based organizations and public agencies; (3) participating in regulatory proceedings and supporting federal and local public policy that promotes broadband adoption; (4) increasing awareness among underserved communities about the benefits of broadband; and (5) partnering with non-profits, governments, companies, and foundations to invest in major broadband adoption initiatives.[87] To date, CETF has been able to match its grants four-fold—with grantees receiving $112 million in matching funds. Notably, CETF grantees have provided digital literacy training to more than 800,000 Californians and helped more than 250,000 households get online. As of 2016, 74 percent of California households earning $40,000 per year or less report having broadband at home—up from 33 percent in 2008.[88]

Example: The City of Philadelphia and Comcast reached a 15-year franchise agreement in which the company committed to expanding its low-cost and free internet access program, Internet Essentials, offering a 10 percent discount on limited basic and digital starter cable TV for low-income seniors, providing free Internet and video at municipal buildings across the city, allowing the city to offer Wi-Fi hotspots at health and recreation centers and other anchor institutions, upgrading the City's network allowing the City to cut costs, donating $500,000 in

[87] California Emerging Technology Fund, Internet For All Now: A 21st Century Civil Right, California Emerging Technology Fund Annual Report 2016-2017 at 3 (2016), http://www.cetfund.org/files/CETF2016-2017ARWeb2.pdf (CETF Annual Report).
[88] CETF Annual Report at 20.

seed money for a digital literacy fund, and supporting technology education in Philadelphia public schools by creating co-op jobs for second-semester seniors and promising to hire 50-100 graduates per year.[89] Philadelphia's City Council passed the franchise agreement in response to a campaign spearheaded by Media Mobilizing Project (MMP), a local non-profit. The organization helped thousands of Philadelphia residents to share stories of how a lack of affordable internet impacted their lives in the press and at official public hearings.[90] Those stories, backed by the results of the city's third-party needs assessment, convinced city officials and Comcast to work together to ensure that the new franchise agreement expanded access to broadband and provided more protections for cable and Internet workers and consumers.

- *Support continued efforts by ISPs to further comprehensive programming that addresses multiple components of digital inclusion.*

Even when addressing non-cost barriers to broadband adoption, cost is an issue. Beyond the provision of affordable services and devices, providing for digital literacy training, relevance programming, technical support, and diverse content development requires the investment of hundreds of millions of dollars in infrastructure, resources, and labor. In the absence of federal funds earmarked for broadband adoption initiatives like was the case with BTOP, corporate entities are stepping up to fill funding gaps and make sustained investments in communities on the wrong side of the digital divide. ISPs are the most obvious investors in broadband adoption efforts. However, all internet- and technology-based businesses that benefit from a connected world should consider making investments in creating and maintaining digitally inclusive communities. Additionally, beyond investing in free equipment and services, companies are wise to invest in local community partners who are familiar with the communities the companies wish to serve. Such has been a key to success for many industry-backed adoption programs for low-income consumers, many of which are profiled below.

Example: Comcast Internet Essentials was created in 2011 pursuant to Comcast Corporation's merger with NBC Universal. Through the program, Comcast offers high-speed home Internet to low-income households for $9.95 per month. Participants may also purchase a low-cost computer and access free digital literacy training online, in-person, and in print. The company has also built a network of partners in local communities to promote the program and make it more effective. Comcast reports that as of August 2016, Internet Essentials has served 3 million low-income Americans, or 750,000 families. Perhaps the program's greatest attribute, and the one which other companies should seek to model, is its flexibility. Since 2011, Comcast has made over 25 enhancements to Internet Essentials—increasing speeds, rolling out a website and online applications, offering in-home Wi-Fi at no additional cost, providing amnesty to families with past-due balances owed to the company, and extending the program to low-income seniors, community college students, and up to 2 million HUD-assisted households.[91] These enhancements have expanded the program to allow for greater participation and more expansive use.

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[89] City Council of Philadelphia, Understanding the Comcast Franchise Agreement, (Dec. 21, 2015), http://phlcouncil.com/understanding-the-comcast-franchise-agreement/.

[90] *See* Media Mobilizing Project, We Need Competition! Philly Comcast Consumers Speak Out, (Feb. 18, 2015), https://mediamobilizing.org/we-need-competition-philly-comcast-consumers-speak-out/.

[91] See Comcast, Internet Essentials from Comcast: A 5-Year Progress Report at 6 (2016), http://corporate.comcast.com/images/internet-essentials-five-year-progress-report.pdf.

Example: Charter offers "Spectrum Internet Assist", a program through which qualified households can receive high speed internet for $14.99. In order to qualify, a member of the household must be a recipient of either the National School Lunch Program or receive Supplemental Security Income.[92] Participants also may not have any outstanding debt with Charter, and have not previously subscribed to their service in the previous two months.

Example: Cox offers families discounted broadband service at $9.95 a month for up to 10 Mbps. The program is open to families with K-12 children who qualify for free or reduced school lunch through the National School Lunch Program, Temporary Assistance for Needy Families, or the Supplemental Nutrition Assistance Program. In addition, Cox has partnered with HUD to support its ConnectHome initiative. Families with K-12 children who live in public housing, as well as K-12 families who receive Tenant-Based Vouchers, Project-Based Vouchers or Section 8 Project-Based Rental Assistance (PBRA) are eligible for Cox's discounted internet service offer.[93]

Example: AT&T, through its low-cost service, Access, offers a wireline broadband service up to 10 Mbps to qualifying households. Eligibility requirements include the following: (1) at least one individual participates in the Supplemental Nutrition Assistance Program ("SNAP"); (2) the subscriber lives within AT&T's service area; (3) participants do not have outstanding debt with AT&T fixed internet service within the last six months.[94] AT&T also participates in ConnectHome and provides discounted service to qualifying families living in public housing as well as scholarships to Udacity's Nanodegree program, which allows individuals to learn skills in hopes of creating a path to a technology-based career.[95] Through the company's Digital You portal, consumers can get information about signing up for its low-cost offering and access digital literacy resources specific to seniors, people with disabilities, parents and caregivers, and job seekers.[96]

Example: Google Fiber approaches digital inclusion with a philosophy that influences the company's product development and external giving strategy. The company's community engagement strategy addresses broadband affordability, relevancy, and digital literacy and has three cornerstones—understanding the local ecosystem, forging partnerships, and driving for scale. To this end, the company hires local teams and community impact managers who have long standing relationships with their cities and are well-versed in bringing together stakeholders to strategize solutions. For example, through the Unlocking the Connection program in Austin, Google Fiber's Community Impact Manager was able to convene local digital inclusion practitioners to maximize the company's impact on affordable housing properties.[97] With respect

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[92] Charter, Spectrum Internet Assist, https://www.charter.com/browse/content/spectrum-internet-assist (last visited Dec. 9, 2016).

[93] *See* Press Release, The White House, ConnectHome: Coming together to Ensure Digital Opportunity for All, (Jul. 15, 2015), https://www.whitehouse.gov/the-press-office/2015/07/15/fact-sheet-connecthome-coming-together-ensure-digital-opportunity-all.

[94] *Applications of AT&T Inc. and DIRECTTV For Consent to Assign or Transfer Control of Licenses and Authorizations*, 30 FCC Rcd 9131, 9186 (2015).

[95] Press Release, AT&T, AT&T and U.S. Department of Housing and Urban Development (HUD) Join Forces to Narrow the Digital Divide (Sep 7, 2016), http://about.att.com/story/att_a_national_stakeholder_in_connecthome.html.

[96] AT&T, *Digital You*, http://digitalyou.att.com (last visited Jan. 4, 2016).

[97] Austin Pathways, *Unlocking the Connection*, http://austinpathways.org/unlocking-the-connection/ (last visited Dec. 21, 2016).

to the second cornerstone, Google Fiber regularly invests in culturally relevant programs with trusted local organizations to address relevancy and digital literacy barriers. One such partnership is with the River City Youth Foundation in Austin, Texas, where local residents in the area are able to access digital literacy programming, devices, and education about available broadband products.[98] Finally, in order to scale its digital inclusion investments, Google Fiber's Community Impact Team partners with national nonprofits to drive their programs inside and outside of their Fiber markets. The company created the Digital Inclusion Fellowship along with the Nonprofit Technology Network to train professionals interested in the intersections of technology, community organizing and nonprofit engagement and staff digital inclusion organizations.[99] One iteration of this fellowship in Atlanta, GA explores a faith-based approach to digital inclusion pursuant to which churches are matched with technology leaders to bring digital literacy training and resources into church communities. Another partnership, which has a product tie-in, is with HUD. Google Fiber is a founding partner in ConnectHome and was the first ISP to offer gigabit speeds to public housing residents. The company has since connected more than 1,800 families in Fiber markets to no-cost Gigabit Internet.

Example: Verizon is one of seven companies that has committed to increasing science, technology, engineering, and math engagement and achievement in underserved schools in all fifty states by 2016.[100] The company committed to making an investment in education of up to $100 million that would reach over 4,500 teachers and 200,000 students. As of November 2016, Verizon has exceeded the $100 million commitment and has reached 11,000 teachers and 367,000 students in all fifty states. Through Verizon Innovative Learning, the company is also seeking to arm students in underserved communities with the skills needed to address income inequality, including digital skills. Accordingly, Verizon "adopts" schools within its wireless footprint and provides students with broadband access and a device, works with teachers to introduce science, technology, engineering, and math curricula, and teaches entrepreneurship by pairing students with mentors.[101]

Example: EveryoneOn is a national non-profit that leverages support from companies to address affordability of service and equipment, and digital literacy. The organization partners with ISPs to bring free or low-cost Internet service to low-income families in 48 states and the District of Columbia. They also partner with device refurbishers to provide low-cost tablets and computers and partner with libraries and nonprofits to promote free digital literacy courses at sites across the country. Through their website, consumers can identify and compare low-cost

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[98] *See* City of Austin, Digital Inclusion; District 2 Relevancy and Advocacy Report at 6 (2015), http://austintexas.gov/sites/default/files/files/Telecommunications/Relevancy___Advocacy_Report_District_2.pdf; *see also* Mary Tuma, Connecting a Whole Community; Austin and Google Fiber move to bridge the digital divide, THE AUSTIN CHRONICLE (Jan. 23, 2015), http://www.austinchronicle.com/news/2015-01-23/connecting-a-whole-community/.

[99] National Nonprofit Technology Network, *Major Initiatives: Digital Inclusion*, https://www.nten.org/major-initiatives/dif/ (last visited Dec. 21, 2016).

[100] Other companies were AT&T, Sprint, Apple, Microsoft, O'Reilly Media, and Autodesk.

[101] Verizon Innovative Learning currently works with 47 schools and has a goal of working with 100 schools within the next 3 years. CGB recognizes that although the initiative is new and has reached relatively few public schools at this early stage, even at the outset, there is promising potential for data gathering that can inform policies related to students' home broadband data use and ways to bridge the "homework gap." *See 2016 Modernization Order*, 31 FCC Rcd. at 4095-99.

service offerings, price a device, and locate courses—making it simple for potential adopters to access the essentials for getting started online.[102]

Example: Connect Chicago is a cross-sector, citywide initiative to narrow digital access and skills gaps. It is supported by a coalition of corporate and institutional funders including Cisco, Clarity Partners, Comcast, Microsoft, Motorola Mobility, Gogo, Sprint, and the MacArthur Foundation. The initiative is guided by public partners seeking to advance the civic and economic health of Chicagoans through technology. Accordingly, Connect Chicago funds the scaling of successful digital inclusion programming throughout the city, incubates new ideas, and cultivates leadership across digital inclusion programs and among practitioners across Chicago.

- *Encourage active investment in ubiquitous broadband adoption by philanthropic organizations and community foundations.*

Philanthropic organizations are important partners in successful broadband adoption and digital inclusion efforts. They can provide critical funding to facilitate affordable access, relevance programming, and digital literacy training in communities. And while major philanthropies with international reach can provide the resources to power major initiatives across the country and in big cities, smaller community foundations are indispensable in leveraging their experience to allocate resources most efficiently in their communities.

Example: The Knight Foundation has stepped in to provide the City of Chicago and the Chicago Public Library (CPL), once BTOP grantees, with several grants that have transformed the city into a model for digital inclusion work. Knight granted CPL $400,000 to jumpstart its "Internet to Go" hotspot lending program, which allows library patrons to borrow a Wi-Fi hotspot and a laptop or mobile device from the library in order to access the internet from home or elsewhere.[103] The foundation funds a similar effort in New York City.[104] The foundation has also funded an initiative led by CPL and Peer 2 Peer University, named Learning Circles, which supports online learning. Through Learning Circles, study groups come to the city's libraries and work through online courses together. The courses guide students through lessons on topics ranging from resume writing and networking to public speaking and fiction writing—synergizing adult learning and digital literacy.

Example: The Blandin Foundation serves rural Minnesota by strategically allocating grants to organizations that support broadband access, adoption and digital literacy through its Community Broadband Resources Program. The foundation supports a number of community projects throughout the state. For instance, in Nobles County, grantees are working to establish Wi-Fi hotspots to provide access to unserved residents. In Chisago County, where broadband is expensive, slow, or unavailable, Blandin undertook a community survey to paint a picture of the divide that exists for lawmakers and providers. As a result, providers have expanded service and

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[102] EveryoneOn, *About EveryoneOn*, http://everyoneon.org/about/ (last visited Dec. 9, 2016).
[103] Google also contributed $175,000 to support Internet to Go. *See* Press Release, Chicago Public Library, Mayor Emanuel, Chicago Public Library Announce "Internet To Go" Tech Lending Program (Jan. 28, 2015), https://www.chipublib.org/news/mayor-emanuel-chicago-public-library-announce-internet-to-go-tech-lending-program/.
[104] Press Release, New York Public Library, Mayor Bill de Blasio, City Library Chiefs Announce Expansion of Library Hotspot Program Through Google Donation, (Dec. 2, 2014), https://www.nypl.org/press/press-release/december-2-2014/mayor-bill-de-blasio-city-library-chiefs-announce-expansion.

rolled out significant service improvements. In Stevens County, the foundation supported a consortium of school districts that developed a broadband-based system for providing specialized distance learning for students with disabilities. And in the Central Woodlands area of the state, a Blandin-funded pilot project assisted local businesses with adopting e-commerce and as a result, the program has expanded to help businesses in surrounding areas. All of these institutions, and the others that Blandin supports, have targeted-mission specific needs that are unique to their rural geography. As a community foundation, Blandin is uniquely situated to appreciate and assess those needs and support groups accordingly.

IV. RECOMMENDATIONS

While a great deal of good work is underway, the Bureau believes that much more can be done, particularly to connect previous and ongoing efforts to advance digital inclusion. In this regard, we note that the FCC is in a unique position to leverage its expertise and its relationships with other federal agencies, state and local governments, public interest organizations, and industry stakeholders to advance digital inclusion work. Accordingly, the Bureau sets forth recommendations for ways in which the FCC and others can address affordability, access, and adoption issues. Specifically, we make recommendations about how to enhance education and outreach around broadband issues, what effective partnerships may look like, and what policy innovations may make a difference in promoting and furthering digital inclusion.

A. OUTREACH AND EDUCATION

- The Commission, in partnership with other agencies working to promote broadband adoption, such as NTIA, HUD, and the Department of Education, may wish to consider the creation of an online hub that catalogues digital inclusion resources by state. The hub could list resources according to the component of digital inclusion that they address: affordability, devices, digital literacy, technical support, and/or applications and content. With a growing number of organizations working on digital inclusion initiatives, this could be a tool to help groups avoid duplicating efforts and to inform them of the resources the field has to offer. For example, a community organization that is operating a successful digital literacy program in a ConnectHome public housing community may be able to secure funding for teachers and to give devices to students, but be unable to afford anti-virus security or operating software. In that instance, the organization could access the online portal and learn about programs like Microsoft's Citizenship Licenses or the software lending libraries offered by several public libraries. The Commission's Consumer Advisory Committee (CAC) may be useful in a consultative capacity to recommend items for inclusion in the portal as well as recommend the appropriate partners to maintain the portal.

- The Bureau also may wish to consider convening a series of in-person and online National Digital Inclusion Summits across the country to bring together federal stakeholders with digital inclusion organizations, Tribal leaders, community anchor institutions including community media organizations, libraries, faith-based organizations, schools, civil rights organizations, foundations, and disability rights advocates. These gatherings might also seek to include diverse press and media outlets, as well as diverse content creators who may be able to inform campaigns to promote the relevance of broadband for underrepresented communities. Grassroots digital inclusion

organizations would also be able to share the challenges they are facing and connect with local and federal government representatives as well as businesses who may be able to assist in fillings needs gaps. Again, the Commission's CAC may be well suited to identify regions in the country where summits are appropriate and to assist in framing agendas.

- The Bureau may consider hosting a separate meeting to bring together representatives of Tribal libraries with representatives of non-tribal libraries and researchers. In doing so, the Commission could facilitate conversations between the groups about the importance of including Tribal libraries in future research specific to libraries, as appropriate, and supporting Tribal libraries with fulfilling their own assessment needs. In recognition of the important roles libraries play in supporting public access to computing and digital literacy training, much research capacity has been dedicated to gathering and analyzing data on the needs of public libraries and their effectiveness. However, those studies have neglected to meaningfully address, or even include, the roles of Tribal libraries.[105] For instance, the annual Public Libraries Survey, which reports on the status of public libraries in the United States, does not include Tribal libraries. Thus, policy that relies on these studies are unlikely to meaningfully address the information and capacity needs of tribal libraries and their patrons. As the Association of Tribal Archives, Libraries, and Museums points out "[i]f advocates, policymakers, and funders can effectively enhance tribal libraries' capacities to meet foundational goals,[106] tribal citizens may be well primed to translate access, availability, and adoption into improved outcomes. *But first we need data*."[107]

- In recognition of the barriers to inclusion faced by people with disabilities, the Bureau and all digital inclusion stakeholders may wish to consider increasing outreach to people with disabilities and their representatives to stress the importance of digital inclusion programs that are accessible to people with disabilities. While the elements that comprise digital inclusion – (1) access to affordable service; (2) access to devices; (3) digital literacy training; (4) quality technical support; and (5) relevant content and applications that reflect the diversity of society – are universal, people with disabilities face additional barriers in securing each of these components of digital inclusion. People with disabilities are even more likely to face affordability challenges due to unemployment and underemployment. Many devices are not designed to be accessible for people with disabilities by default. Digital literacy teachers may not be trained in working with people with physical or cognitive disabilities or in offering support for these populations. Also, many websites and applications are not designed to be accessible for people with disabilities. In its outreach surrounding digital inclusion, the Bureau could work with disability experts to develop a checklist or trainings for organizations to ensure programs

[105] *See* Association of Tribal Archives, Libraries, and Museums, Digital Inclusion in Native Communities: The Role of Tribal Libraries at 4 (2014).
[106] The Institute of Museum and Library Services defines "foundational goals" as the outputs of investments in digital inclusion: availability and affordability, public access, accessibility for people with disabilities, adoption and digital literacy, and consumer education and protection. *See* Institute of Museum and Library Sciences, University of Washington, and the International City/County Management Association, *Building Digital Communities: A Brief Guide to the Proposed Framework for Digitally Inclusive Communities* at 3 (2012).
[107] *Id*.

and curricula reflect the needs of people with physical and cognitive disabilities and to disseminate these resources to umbrella organizations like the National Digital Inclusion Alliance, the American Library Association, and EveryoneOn.

B. PARTNERSHIPS

- The Commission, along with partners at the Department of Education and other interested federal agency stakeholders, may wish to explore ways to facilitate relationships in states between workforce development programs and community colleges so that local students may provide quality technical support to public computing facilities located in schools, libraries, and public housing communities in need. Beyond harnessing the ability of students to provide needed technical support to underfunded facilities, these partnerships can provide important benefits to members of the community. Community college students can gain valuable work experience to add to their resumes—giving them a path to establishing a career, either in IT support, or other opportunities in the digital economy. Also, younger students will be able to interact with more seasoned students engaging in technology—boosting technology's relevance among those students and encouraging them to pursue educations and careers in Science, Technology, Engineering, or Math.[108]

- The Bureau's Office of Intergovernmental Affairs (IGA) may consider engaging and working with the National Association of Regulatory Utility Commissioners, the National Association of Utility Consumer Advocates, and local government representatives including the National Association of Counties and the U.S. Conference of Mayors to identify and connect community anchor institutions and grassroots organizations in their respective localities that are advocating for digital inclusion and implementing digital inclusion programming. Therefore, as cities work to develop digital inclusion strategic plans and as providers work to fold digital inclusion work into their business plans, they would be aware of the organizations already doing the work. Also, as cities that have already developed digital inclusion strategic plans seek to put those plans into action, they could have the ability to leverage the expertise of those organizations and anchor institutions.

- The Bureau, through IGA and the Office of Native Affairs and Policy could also liaise with state and local governments to explore partnerships between cities and/or states and

[108] In a study by Mobile Future that surveyed African-Americans nationwide, 50 percent of those surveyed said they did not know anyone working in the technology sector, but those who did know someone working in tech were 56 percent more likely to being open to being a wireless entrepreneur. *See* Mobile Future, Crossing the New Digital Divide: Connecting to Mobile Economic Empowerment at 3 (2016), http://mobilefuture.org/wp-content/uploads/2016/04/Mobile-Future_BC_PPT-.pdf; In another study by CompTIA, among children who had not considered a career in IT, 69 percent of young girls and 72 percent of boys cited a lack of knowledge about what IT jobs involve as the reason for their disinterest. Additionally, the study revealed that while only 37 percent of girls today know someone with an IT career, among girls who have considered an IT career, 60 percent had a close friend or family member who worked in the IT sector. As this study pointed out, seeing familiar faces in tech and IT jobs gives young people "a reference point for jobs they might otherwise overlook, making these career paths appear attainable rather than unthinkable." *See* CompTIA, Make Tech Herstory: What Needs to Change to Inspire Girls' Pursuit of IT Careers at 11 (2016), http://maketechherstory.comptia.org/downloads/CompTIA-Make-Tech-Her-Story-Ebook.pdf.

nearby Tribal governments and Tribal libraries. Tribal libraries have expressed a need for assistance with developing digital literacy training curricula and technology plans. The Commission can identify suitable partners to pair with tribal governments and libraries to facilitate this work.

C. POLICY

- **Support Lifeline Aggregation Projects.** The Bureau may wish to consider pursuing a mechanism for facilitating Lifeline aggregation projects such that community-based organizations, housing associations, and institutions seeking to coordinate the aggregation of Lifeline benefits for qualifying consumers may be able to easily access guidance on creating projects and enrolling consumers, as well resources for implementing consumer outreach campaigns and digital inclusion initiatives.

  Pursuant to the *2016 Lifeline Modernization Order*, LBPs may aggregate eligible consumers' benefits to provide a collective service to a group of Lifeline subscribers.[109] Community-based organizations, housing associations, and anchor institutions are well suited to aggregate eligible consumers as they are likely readily able to identify groups of individuals who qualify for Lifeline support.[110] Aggregation projects provide an opportunity for organizations and institutions that are already working on non-cost related digital inclusion efforts to also help people access broadband service. For example, an assisted-living community that provides services to low-income adults with disabilities could help residents verify eligibility and enroll in an aggregated benefit program that provides high-speed wireline broadband to the assisted-living center. The fixed connection could then be utilized for Wi-Fi access on the center's premises. Since the Lifeline provider is effectively guaranteed reimbursement for a set number of residents for 12 months, the provider may be able to offer affordable devices to residents, and invest in maintaining and improving the fixed connection.

  Also, in the telehealth context, a low-income clinic that serves many patients who are also eligible for Lifeline benefits could arrange with a Lifeline provider to sign up interested patients who are eligible for Lifeline for a fixed or wireless broadband service that would support health monitoring devices or applications to help the clinic serve its patients' health needs. The patients would ultimately be subscribers of the Lifeline provider providing the underlying broadband connection, but the program could be tailored to ensure it supports the health devices and applications used by the clinic.

  The Bureau expects that these small portraits of the possibilities of aggregated Lifeline benefits programs are just the beginning of what entrepreneurial communities and providers may bring to the market. To this end, the Bureau may wish to consider regional workshops throughout the country to help facilitate development of such aggregation projects and to educate state and local governments about such opportunities.

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[109] *2016 Lifeline Modernization Order*, 31 FCC Rcd at 4015.

[110] In December 2016, the FCC's Wireline Competition Bureau conditionally designated Spot On Networks LLC (Spot On) as a Lifeline Broadband Provider eligible to receive Lifeline support for broadband. Spot On intends to provide Lifeline supported broadband at a New York City Housing Authority multi-tenant housing site in Queens, NY. Such a location would be favorable for outreach and an aggregation project to facilitate participation in the Lifeline program by the maximum number of interested households as possible.

- **Make Purchasing ISP Services Simpler and More Transparent.** The Commission may wish to consider adopting the CAC's "No Surprises" Billing Recommendation to make shopping for broadband easier for consumers. Researchers and practitioners have recognized that when taking into consideration taxes, fees, and surcharges, even so-called low-cost broadband services options may be unaffordable.[111] Moreover, concerns about a lack of consistency and transparency in billing likely impact the decision of many low-income consumers not to subscribe to broadband service.[112] The CAC has recommended three voluntary best practices for promoting billing transparency for communications services, including broadband: (1) Based on service address and information provided, companies should provide customers with the estimated dollar amount of their total monthly bill inclusive of taxes, fees, surcharges, and equipment charges prior to sign-up; (2) Companies should notify customers of the total dollar amount of their expected first and subsequent monthly bills within two business days of sign-up; and companies should include details about their cancellation policy and any fees associated with the policy that apply; and (3) Companies should notify customers about changes to their monthly bill no later than the date of the monthly bill sent prior to the changes becoming effective. By adopting the CAC's recommendation, the Commission could lend consumers the transparency they need to shop with confidence.

- **Support Using the Educational Broadband Service to Provide Service to Underserved Areas.** The Commission may also wish to consider how the Educational Broadband Service (EBS) might further broadband adoption and digital inclusion goals. In 2004, the Commission transformed the Instructional Television Fixed Service (ITFS) into the EBS and licenses were awarded to schools, churches, nonprofits, and other educational organizations for the purpose of providing educational content to students. The Commission also sought to foster the development of the 2500-2690 MHz spectrum band and promote broadband availability.[113] EBS shares the 2495-2690 MHz band with the Broadband Radio Service. EBS licenses typically have a 35-mile radius geographic service area. EBS spectrum is currently licensed for about 85 percent of the MHz/pops, and the Commission has an open proceeding seeking comment on developing a mechanism for licensing the unassigned spectrum. EBS is designed primarily to further the educational mission of accredited schools providing formal educational and cultural development to enrolled students. Subject to complying with educational use requirements, EBS licensees may lease their excess capacity to commercial providers. Sprint is the predominant lessee of EBS spectrum.

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[111] *See* Appalshop, Access Humboldt, California Center for Rural Policy, Center for Rural Strategies, Main Street Project, Media Action Grassroots Network, and Mountain Area Information Network Comments, GN Docket Nos. 09-47, 09-51, 09-137 at 9 (Dec 2, 2009); Meaningful Broadband Adoption Initiatives Report at 9.

[112] *See* Dharma Dailey, Amelia Bryne, Alison Powell, Joe Karaganis, and Jaewon Chung, Social Science Research Council, Broadband Adoption in Low-Income Communities at 25-36 (2010) http://webarchive.ssrc.org/broadband_adoption.pdf.

[113] *See Amendment of the Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands,* Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 14165 (2004).

Some EBS licensees are using EBS to build broadband systems in rural underserved areas that are being used to teach students and provide broadband service to students and their families at home. Two prominent examples of such systems are operated by Northern Michigan University in the Upper Peninsula of Michigan and the Kings County Superintendent of Schools in Kings County, California. The Commission could support such efforts by providing information on such systems to other communities interested in developing educational broadband systems and by granting regulatory relief where relief is needed and justified (for example, by waiving the filing freeze on new EBS applications).

- **Support Using Existing Federal Legislation to Promote Digital Inclusion.** The Commission may wish to consider collaborating with other federal stakeholders to identify existing legislation that may provide an opportunity to further existing and prospective digital inclusion initiatives. Two such opportunities are listed below.

    1. The Department of Labor could explore actions to ensure the Workforce Innovation and Opportunity Act (WIOA) can be leveraged in communities with low rates of broadband adoption to further digital inclusion. WIOA was enacted to assist job seekers with finding employment, education, training and support to become competitive in the job market and to match employers with the workers they need to compete globally.[114] As wireless carriers deploy 5G mobile broadband networks, health care goes digital, and the Internet of Things creates more smart cities, the demand for technology-savvy workers is also rising. It is critical that all Americans are afforded the opportunity to contribute to the workforce and provide for their families. By leveraging the WIOA to advance digital inclusion, DOL could help equip residents with the digital skills necessary to search for jobs and opportunities and to eventually participate in the digital workforce. To this end, the Department could consider investing in community organizations and anchor institutions like schools and libraries that are working to increase broadband adoption and help underserved communities get online and learn the skills needed to meaningfully navigate and use the Internet.

    2. The Federal Reserve, the Department of Treasury, and the Federal Deposit Insurance Corporation (the Agencies) may consider clarifying that efforts to supply broadband to low- and moderate-income areas *and* to support broadband adoption and digital inclusion efforts in those areas meet the definition of "community development" under the Community Reinvestment Act (CRA). The law requires that a bank's record in helping meet the credit needs of their surrounding communities be taken into account when considering applications for new branches or proposed mergers. To this end, a "community development" test factors into the evaluations of small, intermediate, and large financial institutions. In recognition that broadband is essential to the economic health of residents in underserved communities, the Agencies have advised that "a new or rehabilitated communications infrastructure, such as broadband Internet service" is an "exampl[e] of [an] activit[y] considered to help to revitalize or stabilize

[114] *See* 29 U.S.C. § 3101.

underserved nonmetropolitan middle-income geographies."[115] Because communities require not only affordable access to broadband in order to manifest the opportunities that broadband affords, but also access to affordable devices, digital literacy training, technical support, and access to relevant content,[116] the Agencies may wish to consider clarifying that initiatives that support any of those elements would likely qualify as "community development" under the CRA—thus incentivizing financial institutions to invest in local digital inclusion initiatives.

V. CONCLUSION

Access to broadband and the tools to make use of it are not ends in themselves. Over the last two decades, the Internet has evolved into the foremost battleground for freedom of expression, personal and global economic development, and civic participation. And more importantly, it is the foremost medium through which people, from mothers and daughters to artists and activists, share their lives with friends, vet new ideas, and inspire change.

Universal service has always been at the heart of this agency's mission. This digital inclusion plan is another step in ensuring that the reforms of the last several years—the establishment of the Connect America Fund, rate-of-return reform, E-rate modernization, and this year's Lifeline modernization—are fully realized.

The Federal Communications Commission is committed to facilitating not only affordable, ubiquitous broadband access, but meaningful adoption as well. The best practices and recommendations included herein are meant to move this country towards that goal. And this plan should only be a first step. Action—by the Commission, our fellow federal agencies, industry, and communities—should follow. Our work is not done until *all* Americans can take part in the broadband revolution and until broadband access is no longer an indicator of social, educational, or economic inequity, but truly our most powerful tool for eradicating inequity wherever it should appear.

[115] Department of the Treasury, Community Reinvestment Act; Interagency Questions and Answers Regarding Community Reinvestment; Guidance, 81 Fed. Reg. 48506, 48511 (July 25, 2016).
[116] *See* NDIA Digital Inclusion Definition *supra* note 6.