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Broadband access and implications for efforts to address equity gaps in postsecondary attainment

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Individuals increasingly are looking to online distance education as a point of access to

ONLINE EDUCATION DELIVERY IN POSTSECONDARY IS RAPIDLY INCREASING AS A TOOL TO MEET STATE EDUCATION ATTAINMENT GOALS. MORE THAN 25 PERCENT OF STUDENTS NOW TAKE SOME PORTION OF THEIR COURSEWORK ONLINE.

postsecondary education and a pathway to earning a credential or degree. Yet not all potential students do so from the same set of circumstances. Access to adequate broadband speeds – and availability of the financial

means to purchase and maintain use of available broadband – illustrates considerable variation across location¹ and individual demographic characteristics.² Consider:

- Of individuals who live in rural areas of the U.S., more than half (53 percent) lack access to industry standards for broadband service speeds; by contrast, only 8 percent of urban residents confront similar limitations on broadband access.³
- Of households earning \$50,000 or more, 89 percent have a broadband subscription, while only 47 percent of households with annual incomes under \$20,000 do.⁴

States face two main challenges to expanded use of online education to support increased attainment: (1) access to infrastructure for industry standard broadband speeds and (2) limited financial resources to support adoption of broadband where it is available.

State leaders must ensure that the infrastructure for broadband access and financial resources for broadband adoption are in place to support all students in their selection of higher education delivery.

- Broadband adoption patterns differ by race and ethnicity even within low-income households: lower-income black and Hispanic households adopt broadband 10 percent less frequently than white low-income households.⁵
- Of those individuals who do not have a broadband connection, 43 percent cite price as the most important reason for not having broadband service.⁶

Given the proliferation and durability of online distance education as a component of the postsecondary landscape (see Sidebar), the unequal distribution of access to and adoption of adequate broadband should be a cause for concern. This is especially true in consideration of intense state-led efforts to increase educational attainment; for many of the populations that are critical to the success of educational attainment goals – adults, low-income populations, racial/ethnic minorities and geographically isolated student groups – are the very same populations that face barriers to broadband access and adoption.

When focusing on increasing educational attainment, state leaders need to carefully consider the policies necessary to ensure that online distance education is available to existing and potential students who need it most. If students and states are to succeed in pursuit of increased degree attainment, ensuring access to and adoption of industry-standard broadband should be a state priority.

This education trends report focuses on two related but distinct challenges confronting state policy leaders and students as they seek to leverage online distance education to meet personal and statewide education goals: (1) access to the infrastructure necessary to provide industry-standard broadband speeds and (2) ensuring availability of the financial resources necessary to support adoption of broadband where it is available. Offered as a resource for state-level policymakers seeking to connect disparate conversations about broadband access, postsecondary attainment and equity concerns related to both, this report unfolds as follows:

- **First**, the report spotlights the challenge of inadequate access to industry-standard broadband speeds confronting many households and individuals. What is overwhelmingly evident is a physical infrastructure problem – certain communities simply do not have the ability, regardless of desire or the availability of financial resources, to access broadband at industry standard speeds; the information superhighway has not been constructed in these communities.
- **Second**, this report overviews a related but distinct challenge, whereby individuals reside in communities where the necessary broadband infrastructure is in place, but financial and/or other barriers are limiting adoption or use. In essence, the information highway has been constructed but certain segments of the population lack the means to drive on it.
- **Finally**, the report concludes with a set of key questions that state higher education policymakers can consider as they seek to expand the use of online distance education as a means of increasing educational access and supporting student success.

SIDEBAR: SPOTLIGHT ON ONLINE DISTANCE EDUCATION

Students, postsecondary institutions and policymakers are increasingly turning to online postsecondary education to meet individual educational needs, support presumed reductions in college costs and prices, and expand access for post-traditional students; namely working adults and other historically underserved student groups.

Over the past decade there has been a steady and rapid increase in the use of online education delivery in postsecondary education. From 2003-12, the percentage of students taking any distance education courses doubled from 16 percent to 32 percent. Recent data indicates that more than a quarter of all postsecondary students are now taking some portion of their coursework online, with a full 13 percent of students exclusively doing so. These enrollment patterns exhibit some variability when viewed by education sector, most notably for students enrolled at for-profit institutions (see Table 1).

TABLE 1: Percentage of students enrolled in degree-granting postsecondary institutions, by distance education participation, and control and level of institution, fall 2013.

	<i>No distance education courses</i>	<i>Any distance education courses</i>	<i>Exclusively distance education courses</i>
Public	74.6	25.4	8.7
4-year	76.9	23.1	7.6
2-year	71.8	28.2	10.0
Private, nonprofit	80.0	20.0	13.1
4-year	79.9	20.1	13.2
2-year	93.7	6.3	2.5
Private, for-profit	40.7	59.3	51.7
4-year	29.6	70.4	62.3
2-year	88.6	11.4	6.1
All Students Total	72.9	27.1	13.1

Source: Number and percentage of students enrolled in degree-granting postsecondary institutions, by distance education participation, location of student, level of enrollment, and control and level of institution: Fall 2012 and fall 2013, National Center for Education Statistics, https://nces.ed.gov/programs/digest/d14/tables/dt14_311.15.asp (accessed March 7, 2016).

CHALLENGE 1: LIMITED ACCESS TO BROADBAND

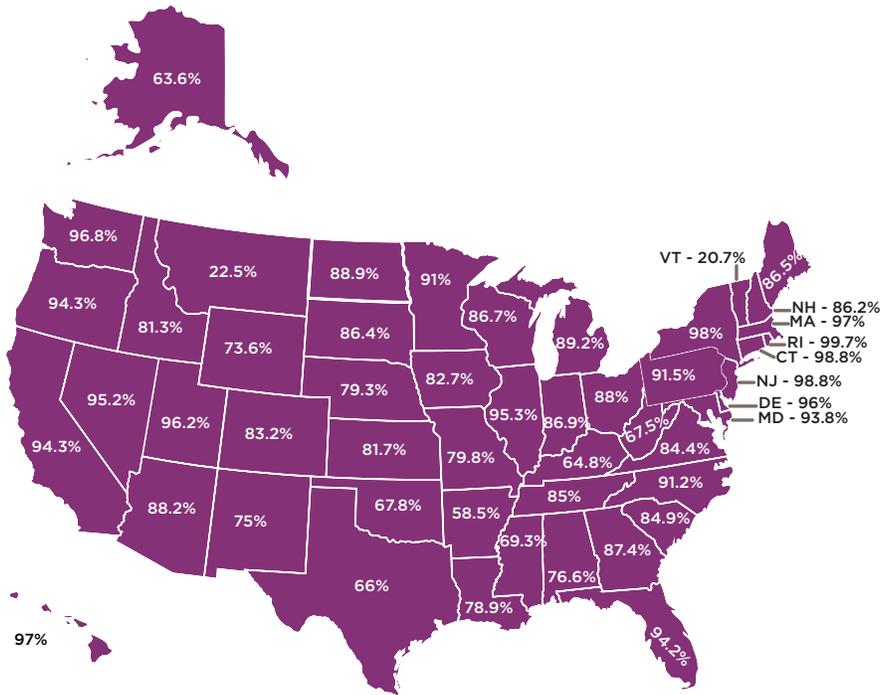
Accessing adequate broadband speeds is an obstacle for many students seeking to enroll in online distance education courses. Depending on where the student resides, available broadband speeds may not be adequate to download and upload files, watch recorded presentations and participate in live video conference meetings and/or class sessions. Broadband infrastructure is necessary to connect to the Internet at high speeds. Broadband access allows information to be sent on many different frequencies or channels to allow more information to be transmitted in a given amount of time. High-speed connection to the Internet allows users to send emails, download information from the Internet and much more.

Access to industry-standard broadband speeds varies significantly by state (see Sidebar 2 for discussion of industry standard broadband speeds). Figure A illustrates the percentage of the population in each state that has access to broadband speeds greater than the industry standard of 25 Mbps. Rhode Island ranks first with the highest percentage of its population having access to these speeds (99.7 percent), while Vermont has the lowest percentage (20.7 percent).

SIDEBAR: FCC AND INDUSTRY-STANDARD BROADBAND SPEEDS

The Federal Communications Commission (FCC), overseen by Congress, is the United States' primary authority for communications laws, regulation and technological innovation. As part of its [2015 Broadband Progress Report](#),⁷ the FCC voted to change the definition of industry-standard broadband speeds by raising the minimum download speeds needed from 4 megabits per second (Mbps), set in 2010, to 25 Mbps. The increased benchmark dramatically impacts the ability of communities to meet standards. For example, in Cameron County, Texas, 92.2 percent of the population had access to speeds of 4 Mbps.⁸ At the new benchmark speed of 25 Mbps, less than 1 percent of the population has access.

FIGURE A: Percentage of population with access to broadband speeds greater than 25 Mbps



Source: National Broadband Map as of June 30, 2014

Notably, there is significant variation in broadband access within states; at the county level, speeds vary widely. For instance, in Texas a full 90 percent of Denton County residents have access to broadband speeds at the 25 Mbps level. In contrast, less than 1 percent of the population of Cameron County has access to those speeds. Table 2 summarizes broadband access at the 25 Mbps industry standard for select states and counties. It also provides contextualizing information on population size, poverty rates, median income and educational attainment levels.

The wide variation observed between and within states, and the corresponding differences in access for rural and certain socioeconomic groups of citizens, has been well recognized by policymakers at the federal, state and local levels.

FEDERAL ACTIONS

The need to expand infrastructure for broadband, especially in minority communities and rural areas, has been a focus of federal communications policy in recent years. In 2009, for example, Congress directed the FCC to develop the [National Broadband Plan](#) to ensure every American has access to broadband. The plan provides a roadmap for the federal government to reach affordable, universal broadband access by 2020 and makes recommendations to the FCC, the executive branch, Congress, and state and local governments.

TABLE 2: State and county examples of broadband access

COUNTY	PERCENT OF POPULATION WITH ACCESS TO DOWNLOAD SPEEDS > 25 MBPS	POPULATION, BY RACE	EDUCATIONAL ATTAINMENT (PERCENTAGE)	MEDIAN INCOME (DOLLARS)	POVERTY RATE (PERCENTAGE)
COLORADO					
Denver	98	Total: 655,180 White: 64.13 Black: 7.59 Hispanic: 25.90 Asian/Pacific Islander: 2.05 Native American: 0.33	50.16	\$53,243	21.30
Costilla	45	Total: 2,588 White: 52.97 Black: 0.05 Hispanic: 45.21 Asian/Pacific Islander: 0.09 Native American: 1.67	23.03	\$27,678	25.70
Weld	82	Total: 281,174 White: 76.83 Black: 0.40 Hispanic: 21.94 Asian/Pacific Islander: 0.49 Native American: 0.33	36.37	\$61,458	14.30



COUNTY	PERCENT OF POPULATION WITH ACCESS TO DOWNLOAD SPEEDS > 25 MBPS	POPULATION, BY RACE	EDUCATIONAL ATTAINMENT (PERCENTAGE)	MEDIAN INCOME (DOLLARS)	POVERTY RATE (PERCENTAGE)
OHIO					
Hamilton	100	Total: 812,859 White: 70.25 Black: 25.63 Hispanic: 2.79 Asian/Pacific Islander: 1.29 Native American: 0.04	43.95	\$53,336	18.50
Athens	64	Total: 64,014 White: 95.22 Black: 1.83 Hispanic: 0.80 Asian/Pacific Islander: 2.13 Native American: 0.02	41.77	\$34,031	24.80
Clark	99	Total: 136,090 White: 90.26 Black: 7.44 Hispanic: 2.09 Asian/Pacific Islander: 0.19 Native American: 0.02	27.52	\$45,351	20.00
OREGON					
Baker	74	Total: 14,391 White: 98.82 Black: 0.16 Hispanic: 0.92 Asian/Pacific Islander: 0.06 Native American: 0.03	32.03	\$40,360	20.00
Douglas	88	Total: 105,582 White: 96.58 Black: 0.03 Hispanic: 2.66 Asian/Pacific Islander: 0.29 Native American: 0.44	26.92	\$42,850	19.50
Multnomah	100	Total: 773,926 White: 79.96 Black: 4.17 Hispanic: 10.75 Asian/Pacific Islander: 4.78 Native American: 0.34	48.70	\$54,822	18.00



COUNTY	PERCENT OF POPULATION WITH ACCESS TO DOWNLOAD SPEEDS > 25 MBPS	POPULATION, BY RACE	EDUCATIONAL ATTAINMENT (PERCENTAGE)	MEDIAN INCOME (DOLLARS)	POVERTY RATE (PERCENTAGE)
TEXAS					
Cameron	Less than 1	Total: 440,027 White: 50.43 Black: 0.09 Hispanic: 49.27 Asian/Pacific Islander: 0.16 Native American: 0.04	22.36	\$35,843	35.80
Denton	90	Total: 754,099 White: 71.52 Black: 7.04 Hispanic: 15.92 Asian/Pacific Islander: 5.31 Native American: 0.20	50.03	\$80,941	8.10
El Paso	6	Total: 863,233 White: 49.83 Black: 1.54 Hispanic: 48.11 Asian/Pacific Islander: 0.38 Native American: 0.16	29.85	\$42,601	24.60
UNITED STATES	85	Total: 323,785,881 White: 69.32 Black: 11.19 Hispanic: 14.91 Asian/Pacific Islander: 4.08 Native American: 0.48	39.95	\$58,811	15.81

Sources: Broadband speed source, population, median income and poverty rate: National Broadband Map (as of June 30, 2014). Educational attainment: reflects four-year and two-year degree attainment, drawn from the Lumina Foundation Stronger Nation report: <http://strongernation.luminafoundation.org>.

In support of the National Broadband Plan, the FCC and the National Telecommunication and Information Administration (NTIA) launched the **National Broadband Map** in 2011 in an effort to determine where broadband was available. In collaboration with states and supported by grant funding through the **State Broadband Initiative**, the NTIA project collected state data twice a year on the availability, speed and location of broadband services. This information was then used to create searchable and interactive web tools. The data and corresponding maps have been used to help inform the broadband access discussion, providing a straightforward and consistent way for communities to monitor and compare their progress in expanding broadband access. The funding for the National Broadband Map recently ended, but broadband data will continue to be collected by the FCC as part of its **477 data collection** program.

President Barack Obama has voiced his stance on the need to improve broadband access for all. In March 2015, Obama signed a Presidential Memorandum creating the **Broadband Opportunity Council**. The council

consists of 26 federal agencies and departments that are engaged with industry and other stakeholders to understand ways the executive branch can better support the needs of communities seeking broadband expansion investment. Additionally, the council has sought to identify regulatory barriers impeding broadband deployment, adoption or competition, and has recommended steps to remove those barriers. On Sept. 21, 2015, the council's first **report** outlined action items and milestones for each agency to achieve. The council continues to monitor the implementation of the action items and to explore additional steps that can be taken to remove barriers to broadband deployment and adoption.

STATE ACTIONS

States have also taken action to increase broadband access by launching advisory councils or boards, initiating state projects to expand broadband and identifying funding to support broadband access expansion.

Oregon, for example, passed **House Bill 3158** in 2009, establishing the **Oregon Broadband Advisory Council (OBAC)**. The OBAC is charged with encouraging coordination between existing organizations and sectors that can leverage broadband to their advantage and expand statewide access. The OBAC submits a report every other year to the Legislative Assembly, covering information about the affordability and accessibility of broadband technology in all areas of the state, as well as the extent of state broadband technology use in the telehealth industry, energy management, education and government.

A second state example, the governor-led **Connect Every Iowan Initiative** was launched in 2013 with the goal of increasing access, adoption and use of broadband technology throughout Iowa. As part of the initiative, the existing STEM Advisory Council's Broadband Committee is charged with developing legislative recommendations to encourage broadband expansion throughout the state, particularly in unserved or underserved areas. The committee's **report** recommends six actions, including: (a) using quality data and standards to measure broadband efforts, (b) encouraging continued dialogue and discussion related to the state's fiber optic capacity, and (c) expanding and encouraging efforts to increase the broadband adoption rate and support residential and business users.

LOCAL ACTIONS

Even at the local level, policies and programs are being adopted to expand broadband access. In Fort Wayne, Ind., **Vision 2020** is a regional initiative focused on aligning the region's economic development efforts around key areas establishing broadband access as a priority to achieve by 2020. The long-term vision in addressing the broadband access barrier includes building a plan to expand broadband width and availability across northeast Indiana, seeking to make the region one of the most wired in the country.

In addition, **The Kentucky Broadband Outreach and Strategic Planning Project**, managed by the Commonwealth Office of Broadband Outreach and Development, promotes broadband strategic planning and seeks to accelerate broadband development across Kentucky. The project supports the KentuckyWired/KY I-Way initiative's goals to prepare fiber optic ready communities, businesses and citizens. With support from the Shaping Our Appalachian Region (**SOAR**) initiative, a Fiber to the Premise (FTTP) - Closing the Digital Divide Pilot began in August 2015. As part of the pilot, two Kentucky communities will be selected to develop broadband strategic plans and leverage knowledgeable consultants to become fiber ready.

SECTION SUMMARY

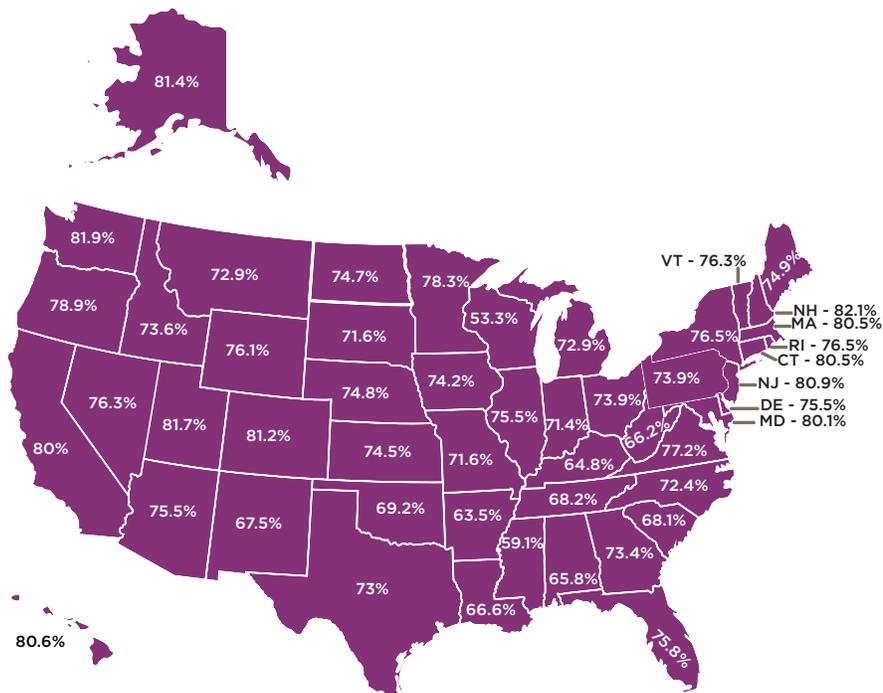
The challenge of limited access to industry-standard broadband speeds varies significantly by state. In addition, within each state, county-level access to adequate broadband varies and demographic characteristics contribute to broadband access disparities. As students consider higher education options, their residential location may impact their ability to access broadband and be successful in online education. Examples of policy action at the federal, state and local levels indicate that the broadband access challenge has been recognized. It is important that the disparity amongst underrepresented groups is made a priority to ensure that all students have the ability to access educational opportunities.

CHALLENGE 2: LIMITED ADOPTION OF BROADBAND

Beyond the broadband access challenge, a second challenge to expanding the impact online distance education can have on educational attainment confronts state policymakers: adoption or use of broadband. A significant number of individuals reside in communities where the necessary infrastructure for industry standard broadband is in place, but financial and/or other barriers are limiting adoption.

At the national level, 75.1 percent of American households had a broadband subscription in 2014.⁸ Figure B provides state average Internet adoption rates for 2014. New Hampshire had the highest number of households with an Internet subscription (82.1 percent), while Mississippi had the lowest (59.1 percent). Table 3 provides a listing of the top three and bottom three states for household Internet subscriptions.

FIGURE B: Percentage of households with an Internet subscription, 2014



Source: U.S. Census Bureau, 2014 American Community Survey 1-year Estimates

TABLE 3: Highest- and lowest-ranked states: Percentage of households with Internet subscriptions

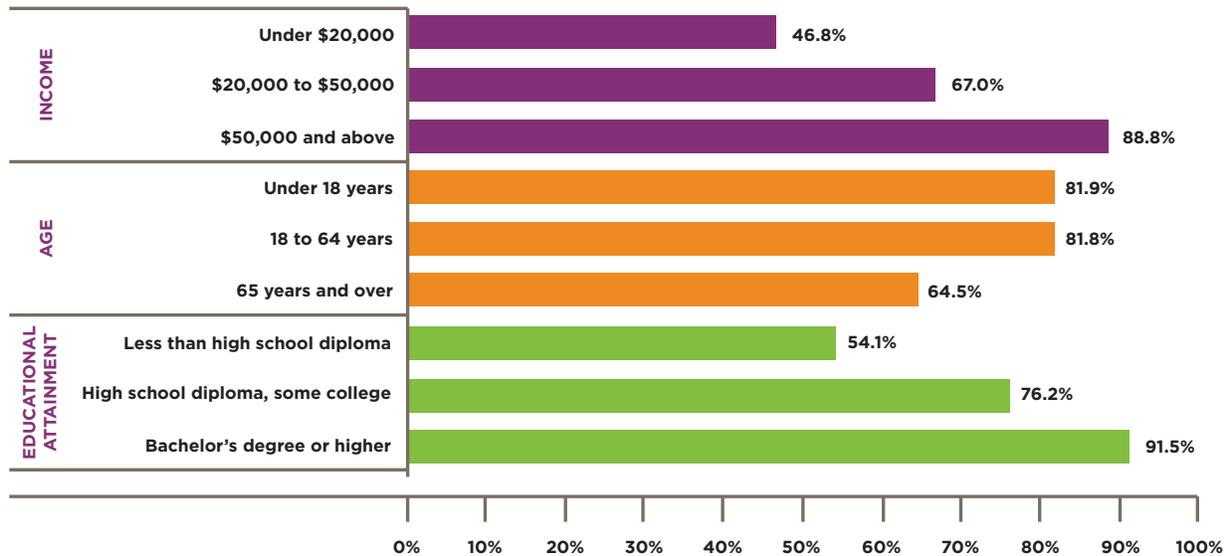
RANK	STATE	% OF HOUSEHOLDS WITH INTERNET SUBSCRIPTIONS
1	New Hampshire	82.1
2	Washington	81.9
3	Utah	81.7
48	Alabama	65.8
49	Arkansas	63.5
50	Mississippi	59.1

Source: U.S. Census Bureau, 2014 American Community Survey 1-year Estimates

Using state geography as a way to assess broadband adoption, while important, overlooks the significant variation that occurs within specific sub-sets of a state’s population. That is, when considering socioeconomic and demographic characteristics, there is wide variation in broadband adoption.

For example, recent data reveal that 89 percent of households earning \$50,000 or more have a broadband subscription, while only 47 percent of households with incomes less than \$20,000 annually do. Turning to educational attainment as a filter for broadband access, 54 percent of individuals without a high school diploma had a broadband subscription, while 91 percent of individuals with a bachelor’s degree or higher do. Figure C details information covering broadband adoption for specific groups.

FIGURE C: Broadband adoption rates by different demographic and economic indicators, United States 2014



Source: Brookings analysis of American Community Survey data¹
 Note: Rates of broadband adoption are reported for households in terms of income, and for individuals in terms of age, educational attainment, and labor status.
 Figure drawn from <http://www.brookings.edu/research/reports2/2015/12/07-broadband-adoption-rates-metropolitan-areas-tomer-kane> and modified by Education Commission of the States.

Beyond economic indicators, race and ethnicity also make a notable difference in broadband adoption rates. In many cases, there are significant gaps in access for black, Latino, low-income and rural students.⁹ Lower-income black and Hispanic households adopt broadband less frequently than white low-income households.

THE GAP BETWEEN THOSE WHO HAVE INTERNET SUBSCRIPTIONS AND THOSE WHO DO NOT CREATES INEQUITIES THAT ULTIMATELY WIDEN THE DIGITAL DIVIDE AND IMPACT EFFORTS TO USE TECHNOLOGY TO ADDRESS OR CLOSE THE ATTAINMENT GAP.

The lack of broadband adoption is apparent among older, less educated and less affluent populations, as well as in rural areas of states where citizens tend to have fewer choices and slower connections.¹⁰ Addressing lower level adoption rates amongst these populations is important to ensure that all citizens are able to take advantage of online distance education as means to support upward economic mobility and increase state educational attainment levels.

Considering the different ways in which segments of the population access and use broadband is critical to the successful design and implementation of policies seeking to support wide broadband adoption. Opening up opportunities for more widespread broadband adoption is an issue the federal government, states and local communities are addressing through policy and programmatic initiatives.

FEDERAL ACTIONS

At the federal level, the FCC **Lifeline Program**, established in 1985, helped make phone service affordable for low-income Americans. Over time, the program has been expanded to include wireless phone service. More recently, the FCC took steps to modernize the program to better support 21st century communications to include access to broadband. Qualified households, those who have an income at or below 135 percent of the federal poverty line, can be eligible for a \$9.25 per month subsidy to be applied to phone service. At the end of March 2016, the FCC is expected to consider repurposing the Lifeline Program so it includes subsidies for broadband services for low-income households.

In addition, **Connecthome**, an initiative involving communities, the private sector and the federal government, aims to expand high-speed broadband to more families across the country. The pilot program is launching in 28 communities to build regional partnerships that will increase access to the Internet for low-income Americans by providing broadband, technical assistance and digital literacy training to students living in public and assisted housing.

STATE ACTIONS

Policy action at the state level seeks to close the digital divide. For example, in 2010, California's **Senate Bill 1462** established the California Broadband Council for the purpose of promoting broadband deployment in unserved and underserved areas of the state and broadband adoption throughout the state. The council is charged with ensuring communication among state agencies regarding California's participation in proceedings related to the National Broadband Plan released by the FCC. The council must also ensure state agencies share relevant information in order to maximize California's opportunities for federal and private funding for broadband deployment and adoption.¹¹

In 2009, **Connect Nevada** was established to work with the state's broadband providers to create detailed maps of broadband coverage, conduct surveys to assess the current state of broadband adoption across Nevada and help communities plan for broadband expansion. Connect Nevada's primary partner is the Nevada Broadband Task Force, established by executive order in 2009. The task force works to identify and remove barriers to broadband access and create opportunities for increased broadband applications and adoption in unserved and underserved areas of Nevada. In 2014, The Connect Nevada State Broadband Action Plan was released and included recommendations to drive future state policy decisions.¹²

LOCAL ACTIONS

At the local level, Internet adoption has become a focus to increase economic competitiveness. For example, the **East Bay Broadband Consortium (EBBC)** is a regional initiative covering Alameda, Contra Costa and Solano counties and is focused on improving broadband deployment, access and adoption in the East Bay area of California. The EBBC was organized by three East Bay development organizations and was awarded a three-year grant in January 2012 from the California Public Utilities Commission (CPUC) to implement an action plan. The EBBC created a Broadband Report Card, using carrier and CPUC data, to evaluate broadband in the area. The grading criteria focuses on Internet provider choices and broadband speeds. Table 4 presents the residential broadband grading criteria.

TABLE 4: East Bay broadband consortium grading criteria

GRADE	CRITERIA
A	Two competing providers, both advertising maximum download speeds of at least 25 Mbps and maximum upload speeds of 6 Mbps, or three or more competing providers offering that standard of service in combination.
B	Competing providers, both advertising download speeds of at least 10 Mbps and maximum upload speeds of 6 Mbps.
C	Competing providers, one advertising down/up speeds of at least 10/6 Mbps and the remainder meeting CPUC's minimum 6 down/1.5 up standard.
D	At least one provider advertising speeds that meet the CPUC's minimum standards of 6 Mbps down and 1.5 Mbps up.
F	At least one provider offers service, but no service is available that meets the CPUC's minimum standard of 6 Mbps down and 1.5 Mbps up (underserved). Or there is no service at all (unserved).

Overall, the East Bay scored a C grade, just meeting the statewide averages for residential broadband availability and core network infrastructure. Most cities in the East Bay scored a C or D, with gaps existing in urban and rural coverage and adoption rates.¹³ The EBBC presented this information to the board of supervisors, city councils, regional business associations and community groups. A number of cities undertook projects to make advances in their broadband infrastructure.

In another example of local action to support increased adoption of broadband, Berkeley, Calif., used the EBBC grading scale and released the [City of Berkeley Broadband Development Assessment](#) in May 2015. The assessment provides specific steps the city can consider to build on its existing broadband policy and provide incentives for private companies to expand broadband infrastructure. In October 2015, Berkeley proposed the Internet-For-All plan to the FCC, establishing an affordable high-speed Internet service plan for low-income families. The broadband providers in the program would offer faster Internet and wireless modem compatibility with school-issued devices for about \$10 a month. Berkeley joins other cities in supporting efforts to improve Internet access for low-income families as indicated in a [letter](#) signed by 43 other mayors and city officials and sent to the FCC.

SECTION SUMMARY

The challenge of broadband adoption is caused by financial and/or other barriers that limit individuals' ability to adopt subscriptions to the Internet even in areas with adequate broadband infrastructure. Variations of adoption rates exist across the states, and socioeconomic and demographic characteristics greatly contribute to the disparity. Income levels, age and educational attainment impact broadband adoption rates. While there has been policy action at the federal, state and local levels, it is important that policymakers further consider broadband adoption trends amongst underrepresented populations to understand the barriers that exist and implement policy to support increased adoption rates.



KEY QUESTIONS FOR POLICYMAKER CONSIDERATION

State- and local-level policy concerning broadband access and broadband adoption is important and necessary to ensure that all students have the tools necessary to achieve postsecondary success. Policymakers and leaders should reflect on the following points as they move toward consideration and implementation of policy actions.

Are state-level broadband access and adoption mapping tools available in your state?

Mapping efforts play a vital role in identifying unserved and underserved areas within a state and at the local level. States are required to submit data to the NTIA for inclusion in the National Broadband Map. Some states also create their own state maps, which allow consumers, broadband providers, policymakers and leaders to identify service availability, speeds and provider coverage. Mapping at the state level helps identify where availability is an issue, where unmet demands are and where priority needs are highest. Efforts to collect, validate and benchmark broadband across states should be used by the public, private and non-profit sectors to expand broadband availability.

Has information been presented (or is it available) that overlays residential patterns of populations critical to state education attainment goals with data on broadband availability and adoption?

It is also important that policymakers recognize and focus on areas with low educational attainment, low broadband access or low broadband adoption. If state educational attainment efforts are to rely on and leverage expansion of online distance education, it is critical that state leadership (a) ensures that the infrastructure necessary to support online education delivery exists and (b) that there are streams of funds available to support adoption of that technology where it does exist. Absent intentionality, states run the risk of having significant pockets of their population unable to access the education and training necessary to support workforce and educational goals.



Is there public and private funding available for broadband expansion?

The federal government has broadband funding programs that support improving broadband access within states. The **NITA's Broadband USA** is a program available to provide assistance to communities that want to expand their broadband capacity and promote broadband adoption. In September 2015, Broadband USA released a **funding guide** that provides information on federal programs that may fund projects involving broadband infrastructure, adoption, access, planning or research.

At the state level, deployment or creation of new infrastructure to high-cost areas (rural and low population density) may require creative public and private partnerships. Some states are doing research and forming task forces or have formed state broadband offices to understand their financial resources necessary to support aggressive broadband expansion. Other states, such as **Minnesota** and **New York**, have a state broadband fund that requires legislative appropriations. State leaders should understand what efforts exist at the state level to fund broadband expansion and determine if adequate funding is a barrier to increasing access.

Do programs exist at the state level to assist in the acquisition and use of technology so that communities that benefit from the increased access to broadband have the tools to take advantage of that access?

Access to broadband and Internet adoption are examples of major barriers to distance education. Another barrier – access to technology such as computers – also prevents students, especially low-income students, from being successful with distance education. For many low-income students, owning a computer is not a reality due to financial constraints, creating an educational barrier for these students, especially as it relates to online distance education. Other students may attempt to complete distance education courses using their smartphones, which can be inefficient. A recent study shows that more than 23 percent of families below the median income level and 33 percent of those below the poverty level rely on mobile-only access for home Internet service due to financial constraints.¹⁴

State leaders should seek out public-private partnerships with broadband providers and consumer technology companies to facilitate increased computer ownership. Programs that provide students with the acquisition of affordable computers and digital literacy training are necessary to ensure that students are well equipped and prepared for online education.

FINAL THOUGHTS

In presenting challenges and posing key considerations, it is critical to keep top of mind the increasing use of online education by students – both students who are engaged in hybrid enrollment patterns taking courses in classrooms and online; and by students who are exclusively pursuing a postsecondary credential through an online program of study. As decision-makers seek to design appropriate policy infrastructures to support these attendance patterns and spur increased educational attainment, it is critical to recognize the stark reality that Internet access and adoption is not equally distributed among all communities. As such, leaders must be cognizant of where gaps in access and/or adoption exist, and should intentionally design unique policy responses to address each distinct challenge. Doing so will ensure that none of the nation’s citizens are unnecessarily kept on the shoulder of the information superhighway.

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