



WHITE PAPER

Closing the Digital Divide: Promoting Broadband Adoption Among Underserved Populations

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Introduction

Benefits of Broadband

In the 21st century, a competitive and sustainable broadband industry is driving innovation, community and economic development, education, health care, and government services. Individual, government, and commercial users can connect not only with a variety of technologies but also apply technology to expand their capabilities. In the past decade, companies have shifted from providing users with simple voice and email services to video interactions, data exchanges, powerful search capabilities, e-commerce, and social networking. Residents rely on broadband services for far more than entertainment: They research issues; keep in touch with others; share information; access quality education services; deliver health care; interact with local, state, and federal government services; and conduct commerce in their daily lives.

However, not all American residents and communities are able to reap the full benefits of broadband technology. According to the Pew Internet and American Life Project, in 2011, about 66 percent of American adults have broadband Internet at home. The remaining 34 percent who do not have it at home, including the 15 percent who do not use the Internet at all,¹ are more likely to be minorities, low income, disabled, elderly, or living in rural areas.² As an increasingly diverse array of essential resources are moved online, failure to address the lower levels of adoption among these population groups may cause them to fall behind economically, socially, and politically.

This demographic gap in broadband adoption is known as the “digital divide.” Current Internet adoption efforts target their outreach to

address the concerns and challenges of these populations. When it was unveiled by the Federal Communications Commission (FCC) in March 2010, the National Broadband Plan (NBP) sought to address issues of broadband use and availability. With regard to adoption, NBP established a goal of achieving a 90 percent adoption rate by 2020.³ To achieve this ambitious goal, the Federal Government is coordinating with states’ efforts to target populations on the other side of the digital divide.

This paper will examine the challenges and benefits of broadband adoption as well as summarize current efforts to address these challenges at the federal, state, and local level and in the private sector.

Challenges of Broadband Adoption

Three primary components in the broadband adoption process were identified in the development of NBP. They are:

1. **Broadband Access.** One obstacle of adoption is access to broadband—either wireless or wireline. Typically, broadband access is most problematic for rural areas with low population levels. Expanding service to those areas is more costly than deployment to urban service areas and offers a lower return on investment for telecommunications and cable companies.
2. **Broadband Affordability.** Another obstacle of adoption is an affordable price for the service provided. The price of broadband needs to be reasonable for all income levels,

¹http://www.zerodivide.org/sites/default/files/FCC_Broadband_Survey.pdf

²[http://pewInternet.org/Trend-Data-\(Adults\)/Home-Broadband-Adoption.aspx](http://pewInternet.org/Trend-Data-(Adults)/Home-Broadband-Adoption.aspx)

³<http://www.broadband.gov/plan/goals-action-items.html>



especially with the proliferation of smartphones and multimedia communications services. Affordability necessarily impacts low-income populations most. Some telecommunications programs seek to address this issue by offering different degrees of broadband service for a reduced price.

3. **Broadband Utility.** After access and affordability, potential adopters must perceive the economic, social, and political advantages of adopting broadband service. Largely an awareness issue, this component affects many different populations on the other side of the digital divide. It presents challenges for policymakers, technologists, and other stakeholders, because “perceived utility” is a difficult metric to quantify and target for demographic groups in a community.

Broadband Access

Lack of broadband access, especially for low-income Americans, can be associated with specific equipment or setup requirements imposed by telecommunications providers, large monthly subscription fees, and ownership of appropriate equipment such as personal computers or smartphones. In Pennsylvania, for example, broadband providers do not provide broadband access for the 81,000 residents of the Philadelphia Housing Authority (PHA).⁴ PHA development residents are at a great disadvantage in education, health care, and many other services that broadband now provides. Many unserved or underserved communities remain at a distinct disadvantage in a digital economy and global society.

From a business model perspective, some rural communities do not provide the economies of scale providers require to justify deployment of broadband infrastructure. In rural areas, only 57 percent of households have broadband Internet access, compared with 70 percent of urban households.⁵ In addition, some

broadband infrastructure does not provide the broadband speeds necessary to access online services in today’s digital world. For example, interactive services for distance learning, software development, and e-commerce may not be adequately supported by slower broadband speeds. Although the disparity between rural and urban broadband is in part due to the fact that access is not as financially feasible for providers in rural communities, some portion of the urban-rural gap in broadband adoption also results from socioeconomic differences between urban and rural residents.⁶

Broadband Affordability

A variety of costs are associated with home broadband adoption, including purchase of a computer and equipment to enable broadband, startup service costs, and recurring monthly subscription fees. According to a 2010 survey of Internet adoption and use, users pay an average of \$40.68 per month in service fees alone for their broadband Internet connections.⁷ Low-income households, especially the 46 million people who live in poverty, must make choices about how

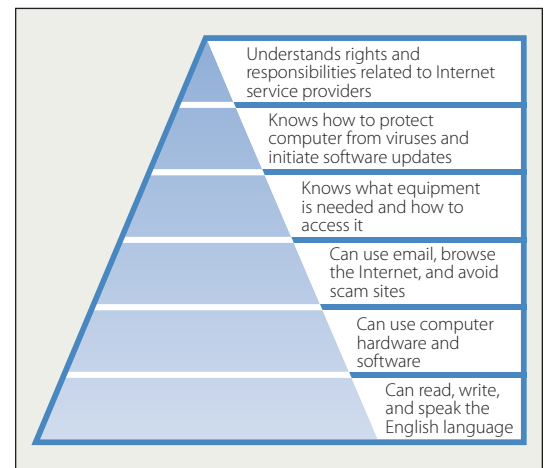


Figure 1: Internet Competencies
Adapted from “Connecting to the Internet Requires Many Interrelated Competencies,” http://webarchive.ssrc.org/pdfs/Broadband_Adoption_v1.1.pdf

⁴http://webarchive.ssrc.org/pdfs/Broadband_Adoption_v1.1.pdf

⁵http://www.connectkansas.org/_documents/KS_res_FINAL.pdf

⁶http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_computer_and_internet_use_at_home_11092011.pdf

⁷http://www.zerodivide.org/sites/default/files/FCC_Broadband_Survey.pdf



they spend the portion of their income that does not go to the necessities of housing, utilities, food, health care, and transportation. They often decide that the value of home broadband Internet service does not outweigh the cost. In fact, in 2010, only 43 percent of households with annual incomes less than \$25,000 had broadband Internet access at home. A quarter (24 percent) of households without Internet services say they do not subscribe because service is unaffordable.⁸

According to survey data, many nonadopters also do not understand or recognize the value and benefits of broadband. According to an FCC study, a significant portion of nonadopters consider the Internet a “waste of time” or the content on the Internet uninteresting or irrelevant.⁹ The National Telecommunications & Information Association (NTIA) echoes these results, citing the most common reason citizens do not use broadband as a “perceived lack of need or lack of interest.” This barrier has become more apparent in the past few years with the increase in use of social media, online entertainment and bill paying, and other Internet-based transactional services. Targeted outreach by companies has evolved online as well—companies are expanding their marketing, sales, and customer service through website and e-commerce capabilities. This rapid adoption furthers exacerbates the digital divide between users and nonadopters.

Broadband access can have a major economic impact on low-income populations. For example, broadband is essential to the job search process, especially among certain underserved populations. African Americans are significantly more likely than other groups to use broadband for the purposes of job searching, getting ideas about starting online businesses,¹⁰ and professional networking.¹¹ However African Americans, especially those without a high school diploma and those with an annual household income less than \$20,000, still experience a lower

rate of broadband adoption.¹² For underserved populations to more successfully compete in today’s job market, they must have the ability to access and use the Internet to seek and apply for jobs and to participate in workforce preparation and educational activities.

The most effective broadband adoption efforts will be specifically targeted to the populations currently on the wrong side of the digital divide and will address the barriers of affordability, access, and utility. Many efforts are under way by federal, state, and local governments, and private industry to increase broadband adoption and close the digital divide. Community anchor institutions (CAIs) such as libraries, schools, community colleges, and local government institutions now provide free or low-cost high-speed Internet access and services throughout the United States.

Efforts in Broadband Adoption

Federal Efforts in Broadband Adoption

The Federal Government is the largest single contributor to broadband adoption efforts in the nation. The Broadband Technology Opportunities Program (BTOP) is the biggest effort of its kind, allowing states and cities to finance studies to better understand the availability and use of broadband in their communities. However, millions of BTOP funds will expire in August 2013. The Universal Service Fund (USF), which has provided millions to subsidize telecommunications adoption, is in the process of a massive reform that will reallocate billions of dollars to support broadband infrastructure deployment in unserved areas and subsidize broadband service to CAIs and low-income families.

Understanding the flow of federal funds for broadband adoption is critical as states and cities plan for their future economic development.

⁸http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_computer_and_internet_use_at_home_11092011.pdf

⁹http://www.zerodivide.org/sites/default/files/FCC_Broadband_Survey.pdf

¹⁰http://www.jointcenter.org/sites/default/files/upload/research/files/MTI_BROADBAND_REPORT_WEB.pdf

¹¹<http://stateofthedia.org/2011/african-american/>

¹²http://www.twcresearchprogram.com/pdf/TWC_WijewardenaReport.pdf



Universal Service Fund Reform and the Connect America Program

USF provides more than \$8 billion per year to support nationwide telecommunications deployment, affordability, and sustainability through four programs: the High-Cost Fund (HCF)/Connect America Fund (CAF), the Low Income Program, the Schools and Libraries program, and the Rural Health Care program. FCC is undertaking drastic reform of these four programs to make them more efficient and to modernize them to support high-speed broadband deployment and adoption to the 18 million rural Americans who lack access to broadband. Through these reforms, the existing HCF will be transformed into CAF, focusing on expanding broadband access in unserved areas. As a result of this change in focus, the HCF funding that states and telecommunications companies counted on to support rural telecommunications providers will no longer be available.

Schools and Libraries and FCC's E-Rate Program

Connecting schools and other CAIs to broadband can be the first step in demonstrating the relevance and utility of broadband to nonadopters and provide improved access for low-income families. The FCC's E-Rate program provides subsidies for schools and libraries seeking affordable high-speed Internet access. Applicants to the program can receive discounts of 20 percent to 90 percent on eligible telecommunications services, Internet access, and internal connections. The rate of discount is based on the percentage of students eligible for the National School Lunch Program that provides free or reduced price lunches to low-income students.

Since 1998, almost \$18 billion in E-Rate support commitments have been issued to schools and libraries. To participate in the E-Rate program, schools and libraries must develop an approved technology plan and submit a successful application to the Universal Service Administrative Company. E-Rate subsidies have become important components of modern education programs, and states have relied on these subsidies to provide access to these CAIs. The

importance of E-Rate in closing the digital divide was confirmed by FCC and the Senate Committee on Commerce, Science, and Transportation at an FCC Congressional Oversight hearing on May 16, 2012. Chairman John D. Rockefeller IV stated, "...the E-Rate program, which has done a fantastic job of providing schools and libraries with affordable access to telecommunications and the Internet. No other program has been as singularly effective at closing our educational digital divide."

Connect to Compete

In October 2011, FCC announced the Connect to Compete (C2C) Program. The nationwide C2C program is a federal, private, and nonprofit sector partnership created by FCC to increase broadband adoption and digital literacy training in disadvantaged communities throughout the United States. The initiative is designed to help residents improve outcomes in education, health, and employment through broadband opportunities and technology solutions. C2C offers affordable broadband service to qualifying families, low-cost computers, and digital literacy classes both in person and online. C2C is addressing both the affordability challenge of broadband adoption and the relevance challenge. The program is being piloted in select cities and is scheduled to go nationwide in September 2012.

Broadband Technology Opportunities Program

The American Recovery and Reinvestment Act (ARRA)-funded BTOP seeks to improve broadband access and use in three project categories: comprehensive community infrastructure, public community centers, and sustainable broadband adoption. The sustainable adoption portion of the program, funded at more than \$250 million, is the largest federal investment in broadband adoption to date. The programs funded with this grant money vary widely and include large multistate grants as well as targeted single-state programs. The largest adoption grant was awarded to One Economy Corporation (\$28.5 million) to develop computer training, broadband awareness, and wireless Internet access solutions for 31 states and the

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District of Columbia. Single-state grants, like the one awarded to the New Mexico State Library (\$1.5 million), often focus on targeting specific underserved populations in the state.

State Broadband Initiative (SBI)

The ARRA-funded SBI program is administered through NTIA. Since its inception in 2009, NTIA has awarded a total of \$293 million to 56 grantees, one each from the 50 states, 5 territories, and the District of Columbia. Grantees have used this funding to support efficient and creative use of broadband technology to better compete in the digital economy. Program efforts encompass technical assistance to small businesses and community institutions in using technology more effectively, research on barriers to broadband adoption, innovative applications that increase access to government services and information, and state and local task forces to expand broadband access and adoption.

Another purpose of the SBI program is to assist states in gathering service provider wireline and wireless broadband data twice a year on the availability, speed, and location of broadband services. The states also track and measure community anchor institutions and their broadband usage. These data are used by NTIA to update the National Broadband Map and influence federal and state policy decisions on USF eligibility and broadband support requirements.

State Efforts in Broadband Adoption

SBI funding has ensured that the 50 states, U.S. territories, and the District of Columbia have at least one task force, commission, or project to support broadband technology, access, and adoption. In addition, some states have received BTOP sustainable adoption funds, and others have had existing adoption programs funded with state or private funding.

One important component in each state broadband effort is the effort to gain a greater understanding of barriers to broadband adoption

through data collection and analysis. In addition to the data collection helping to identify un- and underserved areas of the state or territory (i.e., state broadband maps), many states are performing surveys and gathering information about the level of broadband adoption. Building on these data collection efforts, some states are offering programs specifically designed to increase broadband adoption and use through outreach, trainings, digital literacy education, and equipment donation. The foundation of many of these programs is integrating broadband adoption efforts into existing education, business development, and community-building structures. As a result, program beneficiaries gain a greater understanding of the Internet’s relevance in their daily lives.

Arkansas: Connect Arkansas

In 2007, the Connect Arkansas Broadband Act was signed into law by Governor Mike Beebe, and Connect Arkansas was established as a private, nonprofit organization to implement initiatives to promote Internet service in rural areas and increase Internet use education across the state. Connect Arkansas’ efforts revolve around changing the way people think about a technology that is the “most transformational since the advent of electricity.”¹³ Connect Arkansas received more than \$3.7 million in BTOP funding for sustainable broadband adoption efforts, specifically for expanding broadband use through education in the state.¹⁴

Connect Arkansas promotes broadband adoption through a series of programs specifically targeting

Connect Arkansas

- Targets students and entrepreneurs
- Has received \$3.7 million for sustainable adoption efforts
- Trains students and already-established businesses to be Internet entrepreneurs

¹³<http://www.connect-arkansas.org/programs>

¹⁴<http://www2.ntia.doc.gov/sustainableadoption>



populations that most need the Internet to succeed personally and contribute to their communities—students and entrepreneurs. The initiative ties online education and digital literacy training efforts to efforts related to succeeding in the business world. Connect Arkansas works primarily through the two programs described below.

Arkansas SourceLink. Connect Arkansas provides the resources entrepreneurs need to help their businesses succeed through SourceLink. Alongside resources for writing business plans, funding businesses, and conducting sales and marketing, are resources for understanding how technology can help businesses such as using email, developing websites, cloud computing, engaging in e-commerce, and using social media.¹⁵

Entrepreneurship and e-Commerce Educational Program. Connect Arkansas offers this program to students and other members of the community. The program recognizes that Arkansas students must be able to access broadband's transformative technologies in order to engage in innovative learning opportunities to improve their economic and overall well-being.¹⁶ The training provides students in grades 7 through 12 with the knowledge they need to start an Internet-based business. Any school or community-based organization located within one of the 57 Arkansas counties determined by NTIA to have the most critical needs for broadband adoption is eligible for this program, including community centers, faith organizations, and scouting programs. During the 2011–2012 school year, more than 1,500 students in the state participated in trainings.

Missouri: MoBroadbandNow

Missouri's MoBroadbandNow initiative's goal is to increase broadband accessibility in the state from 79 percent to 95 percent by the end of 2014. It convenes an annual broadband summit and conducts regional broadband planning. Broadband adoption efforts are focused mainly

MoBroadband Now

- Targets low-income and unemployed individuals
- Provides alternatives to home broadband access through state community colleges
- Seeks to increase broadband accessibility in the state by 16 percent by the end of 2014

on low-income, unemployed adults aged 55 years and older and underserved minority groups. In addition, the state has begun efforts to assess broadband adoption needs among farmers and others engaged in agribusiness.

Pathways to Broadband Access and Technology Education at Missouri's Community Colleges.

This program provides alternatives to home Internet access at 23 public computer centers (PCCs) at six area community colleges across the state. It also provides public outreach to high-poverty and unemployed populations and training courses in basic digital literacy. The program is funded through a \$4.9 million BTOP grant to the Missouri Department of Higher Education. The primary goal is to give citizens the skills they need to go after and obtain entry-level jobs that require the ability to effectively use computers.¹⁷ Courses to increase digital literacy include computer fundamentals and social networking. The PCCs pair training with opportunities for real-world broadband use such as telemedicine, small business development, education, job searching, research, and personal enrichment.¹⁸

Vermont: e-Vermont Community Broadband Project

e-Vermont is an initiative launched in 2010 by the Vermont Council on Rural Development in partnership with nine organizations across the

¹⁵<http://www.arksourcelink.com/resources/arkansas-digital-learning-library/technology-social-media>

¹⁶<http://www.connectarkedu.com/our-program.html>

¹⁷http://www.dhe.mo.gov/news/pressreleases/pr_091410.php

¹⁸<http://www.dhe.mo.gov/ppc/grants/broadband.php>



state. This two-year project takes a community-based approach to helping rural residents strengthen their educational, community, and business connections through the use of the Internet.¹⁹ e-Vermont received more than \$2.5 million in BTOP funding for sustainable broadband adoption efforts.²⁰ The initiative is made up of seven efforts to increase broadband adoption in 24 rural Vermont communities. Some of these efforts are summarized below.

e-Vermont Community Broadband Project

- Targets rural communities
- Provides digital literacy training for students and teachers
- Develops a community-centered online forum for residents to participate in community discussions

Cities across the country are realizing the impact broadband can have on community development and are engaging citizens in a variety of ways to increase adoption levels. They are working to provide an awareness of what broadband can do to improve their day-to-day lives and the knowledge and tools on how to use it effectively.

Digital Wish. This program provides digital literacy training for students and training for teachers to integrate technology tools into the classroom. In addition, the initiative distributed netbook computers to students in select fourth, fifth, and sixth grade classrooms. At the end of the e-Vermont's second year, the initiative distributed 1,326 netbooks to classrooms serving 1,260 students and conducted more than 3,000 trainings.²¹

Front Porch Forum. This program provides a community-centered online forum where neighbors can connect and share items of local interest in each participating community. These forums proved to be important community tools for discussing local school issues and responding to the 2011 flooding of the Lake Champlain Islands. The program has since received a \$220,000 loan from the Knight Foundation to rebuild its software and expand to more communities in the state.²²

Vermont Small Business Development Center. This program works directly with 126 small business clients to help them identify Internet uses that address their business needs, improve efficiencies, and expand innovation and profitability. So far, the center has presented 40 business workshops and developed a toolkit that presents online strategies for meeting business goals.²³

Local Efforts in Broadband Adoption

At the local level, access to and adoption of broadband enhances social and economic development and has other positive effects in the community. It can help improve delivery of government services and create strong relationships between policymakers and constituents by fostering better citizen engagement. Cities are increasing their residents' use of broadband by bridging the digital gap, providing government services, and facilitating transparency of information to the public.

Cities across the country are realizing the impact broadband can have on community development and are engaging citizens in a variety of ways to increase adoption levels. They are working to provide an awareness of what broadband can do to improve their day-to-day lives and the knowledge and tools on how to use it effectively. The use of social media through Facebook and Twitter, for example, is helping keep residents apprised of what is going on in the city in easier and faster ways. Stakeholder groups at the local level are another valuable resource for cities—their expertise in the individual needs and challenges that arise with the diversity of disengaged groups in a community helps develop innovative approaches to ensure successful adoption standards across all demographics.

Another successful outcome of increased broadband adoption is improved service delivery between local elected officials and their constituents. According to the 2009 Economic

¹⁹<http://vtrural.org/sites/default/files/library/files/evermont/Year%201%20Wrap%20Up%20Report%20Final.pdf>

²⁰<http://www2.ntia.doc.gov/sustainableadoption>

²¹http://e4vt.org/sites/default/files/library/files/evermont/Year_Two_Update_2012.pdf

²²<http://vtrural.org/sites/default/files/library/files/evermont/Year%201%20Wrap%20Up%20Report%20Final.pdf>

²³http://e4vt.org/sites/default/files/library/files/evermont/Year_Two_Update_2012.pdf



Development Survey conducted by the National League of Cities and the International City-County Managers Association, local governments are using technology solutions that leverage broadband to improve service delivery and help to relieve strained budgets.²⁴

According to the survey, many cities are moving services online, including permit applications and fee payments. Other technology solutions include installing fiber optic networking and cable for both managing city services (such as electric utilities) and providing Internet access to residents. Better consumer devices are being used to leverage broadband and computer systems such as the hand-held computer terminals in permitting and inspection processes. Services like these require less labor and reduce overall costs to the community. Local governments can become more transparent, making it easier for constituents to understand how their taxpayer dollars are being spent. Local elected officials report that being more transparent opens up the door for criticism but also makes it easier to educate the public on policy decisions than when the information was not available online.

Washington, DC: Connect.DC—Digital Inclusion Initiative

In recognition of the importance of educating citizens on how to use computers and the Internet, Connect.DC was formed as Washington, DC’s digital inclusion initiative. Connect.DC provides several services to help increase digital literacy amongst residents such as mobile technology labs and free Wi-Fi in select locations and public computing centers. These services receive BTOP funding for sustainable adoption efforts through the DC–Community Access Network; DC Broadband Education, Training and Adoption; and DC’s Community Computing Resource Project. The project also is receiving funding from SBI.

Digital Inclusion for Returning Citizens. The Digital Inclusion for Returning Citizens program is a partnership between a range of city offices and

Connect.DC—Digital Inclusion Initiative

- Targets underserved communities, low-income populations, and returning citizens
- Has received \$3.7 million for sustainable adoption efforts
- Trains students and already-established businesses to be Internet entrepreneurs

takes advantage of existing resources to provide educational tools to formerly incarcerated residents, or “returning citizens.” The Office of the Chief Technology Officer, the Mayor’s Office on Returning Citizen Affairs, the University of the District of Columbia Community College, and the District of Columbia Public Library work together to provide technology assistance and digital literacy training to returning residents living in the city.

Residents can access the *Digital Inclusion Center*, located at one of the college campuses. The center offers a staffed computer lab with 20 refurbished computers and access to high-speed broadband Internet service. Participants take part in a comprehensive training curriculum and, upon completion, will receive a refurbished desktop computer and one year of free broadband service. Further training is available to help enhance skills.

Philadelphia, PA: KEYSLOT, Powered by Freedom Rings Partnership

KEYSPOT, Powered by Freedom Rings Partnership is the city’s initiative to open or expand computer centers in health and social service agencies, homeless shelters, affordable housing locations, and recreation centers in low-income communities. The project brings together city agencies, grass-roots organizations, and universities that are focused on increasing broadband adoption rates in the city. Funded by an ARRA BTOP sustainable adoption grant,

²⁴“Technologies to Increase Government Transparency” webinar, National League of Cities and Public Technology Institute, May 4, 2010, <http://www.pti.org/index.php/ptiee1/inside/C133/#620>.



the project helps residents access a variety of information not otherwise available to them such as job postings, health information, and educational resources on the Internet.

KEYSPOT

- Targets students, parents, low-income populations, and non-English speakers
- Provides computer and Internet training programs to teach students and parents how to research and apply for college

Bridging the Generation Gap and Digital Divide in One Course.

This course, one of the many programs offered by KEYSPOt, teaches basic computer skills to parents, guardians, and high school-aged children. It also provides training on how to research and apply for colleges. With a goal of bridging the generational divide between parents and children, KEYSPOt offers a more enhanced learning experience by combining learning from the school technology curriculum perspective and the adult-oriented computer training. Participants who successfully complete this 8-hour training receive a free netbook.

KEYSPOT's BTOP grant is set to expire in August 2013. Program coordinators are working with local partners to determine how they can continue to sustain the course.²⁵

Brownsville, TX: Connect Brownsville

The Connect Brownsville program reflects the understanding that addressing unemployment will improve economic development. It aims to use broadband and computer awareness, access, and education as a tool to help enhance the workforce. The project entails increasing the town library's broadband speeds, providing 176 new computers to the library, and deploying a mobile lab. Working with the Texas Southmost College, the program plans to provide an additional 30 laptop computers for residents.

In addition to the increased library capacity and mobile lab, Connect Brownsville is working with the United Way of Southern Cameron County, a community development organization in the city, and the Brownsville Literacy Center to provide additional services to the citizens. Five new workstations will be used to assist with basic computer skills training, GED preparation, basic math and reading, and English-as-a-second-language classes. To ensure a coordinated approach to increasing broadband adoption, the city is working with the Texas State Library & Archives Commission's statewide Public Computer Center project to deliver training modules, effectively use resources, and share best practices related to its digital literacy efforts. This project also is a BTOP sustainable adoption grant awardee.

In 2011, the project reported that users are taking advantage of the center to help improve computer skills, navigate the Internet for job searches, and use word processing applications for resume building. Funding for Connect Brownsville comes from the BTOP Sustainable Adoption Grant, and additional assistance for the management of the Brownsville Literary Center comes from the United Way of Southern Cameron County, Community Development Block Grants, and private and corporate donations.

Connect Brownsville

- Targets unemployed residents
- Has provided 176 new computers to the library and increased broadband speeds
- Deploys a mobile lab
- Works in conjunction with the Texas State Library and Archives Commission's statewide Public Computer Center project

²⁵http://technicallyphilly.com/2012/08/03/keystone-100k-hours-of-computer-training-to-10k-participants-in-last-year-planning-for-end-of-federal-funding-video?utm_source=twitterfeed&utm_medium=twitter&utm_campaign=Feed%3A+TechnicallyPhilly+%28Technically+Philly%29



Madisonville, KY: Go Madisonville, Social Media, and Free Wi-Fi

Go Madisonville takes a customer service-oriented approach to providing local services to residents of the city. Through this tool, residents can expedite reporting information on a variety of local issues while city staff can address them quickly and efficiently. A mobile app of the program allows residents to submit services requests and easily notify city staff about other problems. Launched in May 2011, the program received in its first year of operation 832 alerts and requests from residents ranging from the fixing of potholes to street light outages to missed garbage collection.

Go Madisonville, Social Media, and Free Wi-Fi

- Targets local residents
- Leverages mobile apps and social media to communicate with residents about city services
- Partners with NewWave Communications and US Bank to provide free Wi-Fi service

The city also is taking advantage of social networking sites such as Facebook to increase citizen engagement. Its Facebook page links to other Facebook pages such as those of the Madisonville Police Department, local newspaper, and local community and economic development groups. The page reports on various service interruptions, provides updates on community news, and creates a platform for residents to comment and engage with city staff and policymakers. The city provides up to 4 hours of free Wi-Fi service within a 24-hour period to residents. Partnering with NewWave Communications and US Bank, the city has three locations where users can access the Internet for their needs. The city has used local funding as well as partnering with private companies to increase broadband adoption in the city.

Arlington County, VA: Social Media Squad and Emergency Response Mobile Application

The Communications Office of Arlington County manages the county's main Facebook page, Twitter feed, and blogs that connect to Facebook pages and Twitters feeds of other County departments and to sources for local information such as shopping and volunteer opportunities. Five employees in the Communications Office are on a daily rotation during the work week to post new information and respond to queries submitted by residents.

The county also has created a mobile app for residents to use during natural disasters and other emergency situations. The app provides information on the latest news and alerts in addition to emergency meeting places, medical resources, public emergency contact numbers, and volunteer opportunities during emergency situations. Arlington has used local funding for these efforts.

Social Media Squad and Emergency Response Mobile Application

- Targets Arlington County residents
- Leverages social media and mobile apps to communicate with residents during emergency situations

Private Industry Efforts in Broadband Adoption

National Foundations

Many organizations such as the Gates Foundation, the MacArthur Foundation, and the Wallace Foundation have made broadband expansion and adoption a priority. Every year, these foundations grant millions of dollars to schools, libraries, and other CAIs across the nation. Such grants often are closely related to federal broadband projects being deployed in states. Regardless of the overarching focus of the foundation, each foundation has a component that focuses on technology. For



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example, the Gates Foundation has funded many projects that focus on developing broadband and technology plans for community anchor institutions; the MacArthur Foundation has funded curriculum development and digital literacy. Grant applications that reflect an understanding of the foundation’s overall objectives are stronger and help the community align and prioritize its goals related to broadband adoption.

Regional Foundations

Many regional foundations seek to address local challenges and needs, including broadband adoption. These foundations often work closely with state and local governments to help the community achieve its overarching goals. The Benedum Foundation, covering West Virginia and Pennsylvania, works to develop rural areas through education, economic development, health and human services, community development, and civic engagement. The foundation has funded broadband adoption programs such as the One Economy Corporation’s project to create a statewide broadband adoption program to increase Internet use and digital literacy among West Virginians. Another example is the Blandin Foundation in rural Minnesota which focuses on the economic revitalization of rural areas through broadband technology.

Because regional organizations tend to be geared toward local and community issues, they can be very flexible in the type of funding they provide. Rural communities, districts, and schools should familiarize themselves with regional and local foundations. The Foundation Center offers a searchable database of foundations across the nation as well as other resources.²⁶

Private Telecommunications Companies

Many private telecommunications companies offer some kind of broadband adoption assistance plan, generally in the form of discounted rates for basic service.

Comcast Internet Essentials provides qualifying households with a computer for \$149.99

and broadband service for \$9.95 per month. Households must have at least one child enrolled in free or reduced lunch through the National School Lunch Program.

CenturyLink offers a similar discounted service package—\$9.95 per month broadband service and a netbook computer for \$150. However, CenturyLink uses the FCC’s Lifeline affordable telephone service program—part of the Universal Service Fund—to determine eligibility.

Both of these programs are part of an FCC program to bring affordable broadband to low-income Americans. Notably, national providers AT&T and Verizon are not participating in these affordable service programs.²⁷

Principles for Successful and Sustainable Adoption

No one-size-fits-all solution exists for promoting broadband adoption among un- and underserved populations, but some key lessons learned in meeting these goals include:

- **Recognize the variety of adoption needs.** States, cities, and neighborhoods have different broadband adoption needs. Adoption efforts should be tailored to these needs.
- **Increase relevance of broadband adoption.** Relevance and meaningfulness can be increased for those who are nonadopters by incorporating broadband use into existing social structures and social service delivery (e.g., accessing public information and resources online).
- **Understand the value of partnerships.** With limited funding, developing partnerships is a way to maximize scarce resources. Whether existing equipment is being repurposed or information is being shared that would not be otherwise available, partnerships can be effective at helping cities work with what they have.
- **Provide tools to those who need them.** In addition to the lack of access and digital

²⁶<http://foundationcenter.org/>

²⁷<http://www.tomsguide.com/us/FCC-low-income-Time-Warner-broadband-Comcast,news-13140.html>



illiteracy, an adoption barrier is simply not having the tools at hand to use broadband. Some of the examples above feature incentives in the form of free broadband access or computers as a way to encourage and promote adoption.

- **Engage other stakeholders.** Different interest groups bring their individual perspectives to the table. Developing solutions to meet challenges requires a comprehensive understanding of the specific community's playing field and players.

How ICF and NLC Can Help

ICF International

The ICF Broadband Team offers a wide range of capabilities tailored to the needs of state and local governments. From policy advisory services to technical expertise, the Broadband Team can be a trusted independent adviser on broadband technology, infrastructure, and regulatory and market conditions and can facilitate local government policy and decision making. ICF can help assess network challenges and adoption needs—and support grant writing for funding to develop end-to-end solutions to meet these needs.

Universal Service Fund/Connect America Fund Analysis—The FCC's proposed transition from USF to the CAF represents the commission's dedication to funding broadband projects and leading edge communications technology. However, it also means that the disbursements that many local telecommunications companies receive under USF may be changed or decreased when funds are transferred to CAF. To ensure states and cities continue to receive financial support under CAF, ICF has developed a suite of products and analytical tools that prepare telecoms as well as state and local governments for this change. ICF also closely tracks changes to the E-Rate program, the USF program dedicated to helping schools and libraries obtain affordable telecommunications and Internet access. ICF offers independent-perspective advisory services

on broadband and telecommunications needs to evaluate technology alternatives and options.

Evaluation of Current Connectivity to Community Anchor Institutions—Nearly all schools and most other CAIs have Internet connectivity of some kind. The speed and capacity of those connections is of paramount importance and should be aligned with current and future service requirements. To support video conferencing and distance learning, specific connections and capabilities are required. Furthermore, determining how to leverage schools and CAI connectivity for individual residents can help bolster broadband adoption in the local community. ICF specializes in targeted community reviews of wireless and wireline broadband coverage and capacity for commercial and government agencies.

Broadband Plans—ICF supports the development of broadband plans designed to coordinate federal, state, and local initiatives for local community development. Because the importance of broadband lies in its capabilities and applications as well as to the network itself, a concerted, coordinated effort is needed to obtain maximum benefit from broadband investment. By integrating adoption data and surveys into a state or local government's broadband plan, ICF can help ensure that nonadopters are brought online to reap the benefits of a coordinated broadband plan.

Mapping—Maps and other data visualization tools are particularly important for rural education and technology issues. An informed analysis of the spatial relationship between networks and educational institutions can make the difference between a good investment and one that may require additional funding and review. For this reason, ICF has developed powerful decision support tools and mapping tools specifically designed for broadband adoption support. Some of ICF's mapping capabilities include demographic and local education data analysis, spectrum/wireless data, broadband coverage and capacity analysis, USF/CAF eligibility analysis, demand analysis, and projection. ICF supports broadband



decision support tools that provide states with analytical capabilities for broadband coverage, demographics, and specialized local data to influence broadband adoption and improved coverage for their communities.

National League of Cities

The National League of Cities (NLC) is a membership organization representing more than 2,000 municipalities. Working with the 49 state municipal leagues, NLC serves as a resource for the more than 19,000 cities, villages, and towns it represents. NLC's mission is to support cities and towns with federal advocacy efforts, leadership training skills, and tools and resources to address local issues.

Provide Information on Best Practices—

Through its Center for Research and Innovation, NLC acts as a clearinghouse for city and community examples of best practices with regard to in-home broadband adoption. The relationship between broadband access and application has been addressed through several mediums, including webinars, publications, and newspaper articles NLC has produced for its members. In addition to highlighting how broadband access can benefit constituents in terms of jobs creation, education, and health care, NLC has looked at how broadband access can improve local government performance by creating efficiencies, cutting costs, and increasing transparency.

Inform the Policy Decision-Making Process—

In addition to practical examples of best practices, the lessons learned can help educate local elected officials on important policy considerations for their communities. Understanding the fundamental challenges their constituents have with broadband adoption can give policymakers a better perspective as they develop policies and strategies to meet their own needs. Additionally, they can assist other local stakeholders in seeking a better understanding of the nuances of broadband adoption in the United States.

Understand the Individual Needs of Cities—

As members of NLC, local elected officials from municipalities of all sizes can participate in a variety of ways. NLC's seven policy committees are tasked with discussing and influencing federal policy that has a direct and profound impact on local government operations, including telecommunications policy. Opportunities exist for networking in groups defined by population size (small and large cities), university communities, and first-tier suburbs. NLC has formed various constituency groups to address different cultural demographics experiences. Local elected officials can engage with the organization's staff and enable them to gain better insight into the needs of and challenges cities across America face and access the background information needed to best address these issues.

Gain Insight from Other Stakeholders—NLC's non-city partners include other state and local membership organizations, the business and academic communities, and regional entities whose mission is to help advance the growth and development of cities. These partnerships help NLC further the work of cities by providing access to a broader pool of stakeholders. They help create dialogues between all stakeholders to help identify challenges, set goals, and develop strategies to meet those goals.

Individual communities have their own needs and social and political landscape, and NLC's mission is not to dictate prescriptive solutions. Rather, NLC aims to help local leaders work with their communities, take advantage of sound principles that have worked well in other cities, and explore innovative approaches that can meet their needs.



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Since 1969, ICF International (NASDAQ:ICFI) has been serving government at all levels, major corporations, and multilateral institutions. With more than 50 offices and more than 4,500 employees worldwide, we bring deep domain expertise, problem-solving capabilities, and a results-driven approach to deliver strategic value across the lifecycle of client programs.

At ICF, we partner with clients to conceive and implement solutions and services that protect and improve the quality of life, providing lasting answers to society's most challenging management, technology, and policy issues. As a company and individually, we live this mission, as evidenced by our commitment to sustainability and carbon neutrality, contribution to the global community, and dedication to employee growth.

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The National League of Cities is dedicated to helping city leaders build better communities. NLC is a resource and advocate for more 2,000 member cities and the 49 state municipal leagues, representing 19,000 cities and towns and more than 218 million Americans. Through its Center for Research and Innovation, NLC provides research and analysis on key topics and trends important to cities; creative solutions to improve the quality of life in communities; inspiration and ideas for local officials to use in tackling tough issues; and opportunities for city leaders to connect with peers, share experiences, and learn about innovative approaches in cities.

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