How City Leaders Can Bridge the Digital Divide

Broadband internet has evolved from being a cutting-edge luxury to an essential utility for participation in daily life. Unfortunately, not everyone benefits from this vital tool. Because of barriers in affordability, accessibility or availability, and skills, an estimated 42 million residents in the United States do not have broadband at all, and 157.3 million live with slow or unreliable internet service.[1] This must change. Cities can be proactive to bridge the digital divide. The Digital Equity Playbook helps city leaders determine causes of the digital divide in their communities, provides recommendations to address it, shares stories from local governments and suggests additional resources.

Broadband is high-speed, reliable internet access, measured in download and upload speeds.

What are the digital divide and digital equity?

The digital divide is the gap between individuals who have access to computers, high-speed internet and the skills to use them, and those who do not. Digital equity means the digital divide no longer holds people back. According to the National Digital Inclusion Alliance (NDIA), digital equity is a "condition in which all individuals and communities have the information technology capacity needed for full participation in our society, democracy and economy. Digital equity is necessary for civic and cultural participation, employment, lifelong learning and access to essential services."[2]

Whom does the digital divide affect?

Access to the internet, connected devices and digital literacy remains unequal in the U.S. Estimates vary between 14.5 million and 42 million residents living in areas without broadband internet of at least 25 megabits per second (Mbps) download speed and 3 Mbps upload speed.[3] Even when internet access is available, it is not always high quality. A Microsoft analysis from November 2019 found that 157.3 million Americans are suffering from slow and unreliable internet connections with speeds below the FCC guidelines.[4]

Some people are more likely to be digitally disconnected than others:

◆ Because more people live in urban than rural areas, most digitally disconnected households are in urban areas. However, rural areas lag urban areas regarding broadband adoption (81 percent compared to 86 percent, respectively).[5]

◆ Low-income residents are less likely to have reliable access to high-quality, in-home connections and enabling technology. Households earning less than $20,000 per year have a broadband adoption rate of 62 percent, compared to households earning more than $75,000, which have an adoption rate of 81.8 percent.[6]

◆ Nearly half of the people who are digitally disconnected are Black, indigenous and people of color (BIPOC). Compared to 90 percent of White households and 86 percent of Latinx households, only 82 percent of Black households have internet at home.[7]

◆ Older residents are more likely to be digitally excluded, as 42 percent of American seniors, or 22 million, lack broadband at home.

Mbps, or megabits per second, is the measure of internet bandwidth. The greater the bandwidth, the faster a user can download data from or upload data to the internet.

What is causing the digital divide?

Three main causes of the digital divide exist:

Affordability

Cost of devices and broadband service is not within reach for some users.

Accessibility or Availability

Broadband at speeds and quality needed to accomplish common tasks is not accessible or available to users because the service does not exist, the speeds or quality are inadequate, or devices to use the internet are not available.

Skills

Users do not have the skills necessary to use technology (internet, devices, etc.) or to navigate successfully.

Endnotes

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Getting Started with Digital Equity

Start with a broadband needs assessment

The first step in addressing the digital divide is understanding what causes it. A broadband needs assessment enables city leaders to explore the extent of the digital divide, who is being excluded, what broadband service is currently available and the solutions that cities could bring to the table. A broadband needs assessment is a four-part process:

◆ Connect with the community;

◆ Evaluate the digital equity landscape;

◆ Gather foundational data;

◆ Report on findings

Connect with the community

The community is a city's greatest resource in determining how to address the digital divide. Community members have experience on what it takes to use the internet in their city. They know the challenges and should actively participate in exploring and determining solutions. They can provide insight into gaps in internet service, barriers to affordable service and devices, and trainings to improve internet skills. Community members can be residents but should also include students, educators, librarians, business owners and workers so that the city gets a clear picture of the digital divide.

Ensure racial equity in digital equity efforts

Racial equity refers to an outcome in which racial identity does not predict life outcomes. In contrast, racial equality involves treating all races the same. Although an important principle, racial equality does not help close the gap if people start from unequal places. For this reason, racial equity avoids a one-size-fits-all approach and, instead, tailors policies and programs, and prioritizes communities historically and consistently excluded from access to resources. Because the digital divide particularly affects BIPOC communities, it is important to ensure that digital equity efforts investigate these differences and proactively address the digital divide in these communities.
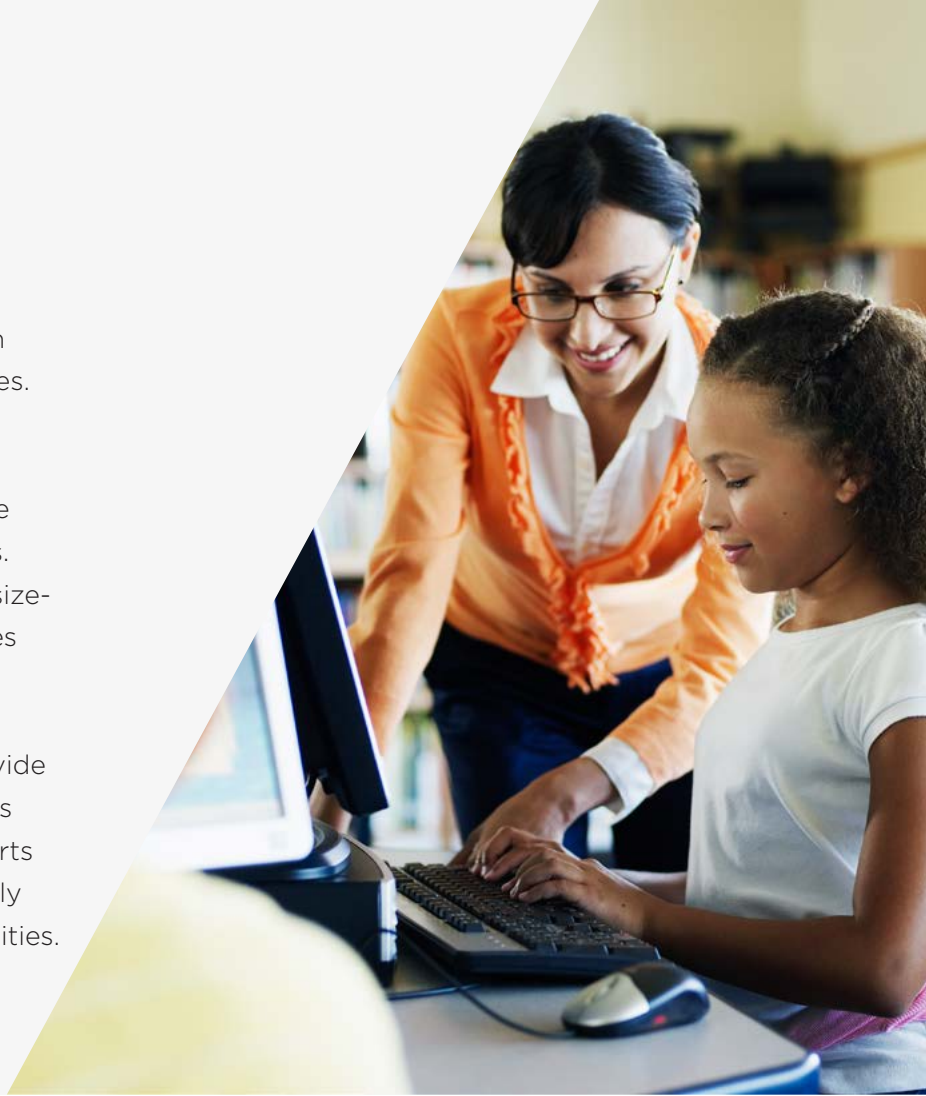
Evaluate the digital equity landscape

No matter where a city is in its digital equity journey, stakeholders should learn from previous digital equity efforts, to inform current work. Whether the city or community led this work, it is important to know who was involved, what happened, why it worked (or did not work) and how it has affected the current causes of the digital divide. Search for these answers within and outside of the organization. Connect with community members to learn more. Look to state and federal partners to understand how the city has worked with them.

Gather foundational data

Publicly available data exists to help stakeholders assess the digital divide in the community. To know the extent of the problem, it is necessary to collect additional information to close gaps or confirm publicly available data. Some cities use surveys to gather information on current internet service, actual internet speeds and pricing information. Some state broadband offices have already undertaken this work. It may be useful to connect with them to understand their results and outreach methods. Data from the American Community Survey can help city leaders better understand things such as home computer ownership.

Use the NLC Broadband Needs Assessment to see data for your city and compare the state of the digital divide in your community to state and national data points.

Report on findings

To build momentum toward solutions and implementation, city officials should widely communicate the results of the broadband needs assessment. Consider the needs assessment as a living document. As the community's broadband needs shift, this foundational information should be updated so that current efforts reflect the change.

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Investing in Digital Equity Solutions: Infrastructure

Investing in digital equity solutions

After city officials have communicated and built support for what their communities need to create digital equity, they can start to consider the many options for realizing this equity. This section explores investments that city leaders may consider establishing or expanding in their communities. It describes each solution and highlights local government efforts to use the solution to bridge the digital divide in their communities.

Infrastructure

A wide spectrum of infrastructure solutions exists for local leaders to consider, from building public conduit that cities lease to internet service providers, to providing retail internet services directly to homes and businesses. By providing public infrastructure to their communities, cities can reduce barriers to entry for private service providers and allow better coverage and more competitive rates.

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Conduit network

A conduit network is a system of underground pipes through which fiber optic cable can run. In this solution, cities can construct, repair and maintain the network and provide access points for the internet service provider. The internet service provider is responsible for pulling the fiber through the conduit, lighting the fiber and providing the internet service.[1]

Dark fiber

In dark fiber solutions, cities construct a network of physical fiber optic cable strands that private companies may lease to provide service to customers. These networks can be run through conduit or attached aerially to poles.[2] Fiber optic cables transmit data via light passed through special glass or plastic strands in the cables, and dark fiber is fiber optic cable infrastructure that is not in use. Private companies bear responsibility for "lighting" the fiber—that is, using light to pass data through the network—and providing internet access services to end users.

Lit fiber

Lit fiber solutions include burying a physical fiber network and lighting it up by using network electronics so that the fiber actively transmits data and delivers internet service. The city maintains the network and provides support through a network operations center. Private internet service providers then lease the network and provide internet services through a virtual circuit.[3]

Community broadband

Community broadband, also known as municipal retail broadband, is publicly provided, whereby municipalities, public-private partnerships, nonprofit organizations or cooperatives build the infrastructure and provide service directly to customers, in contrast to internet service that a for-profit company provides directly.

Fixed wireless

Fixed wireless access is a last-mile alternative to direct fiber-to-the-home connections and offers connectivity when an expensive infrastructure project is not feasible. Fixed wireless networks connect homes to a wireless transmitter with an antenna. This approach generally requires a direct line of sight between the home and the transmitter, so physical barriers such as trees and terrain can block the connection.

Wireless mesh network

Mesh networks allow cities to wirelessly connect residents to the information they need. Public Wi-Fi networks are frequently wireless mesh networks. Instead of relying on access points or wireless hotspots to connect users to the internet, mesh networks use a distributed system of wireless nodes to share the network across a defined area. Only one node needs to be physically wired into a network to share that connection with the nearest nodes. Those nodes then share the connection with nodes around them to create a cloud of connectivity.[4]

Endnotes

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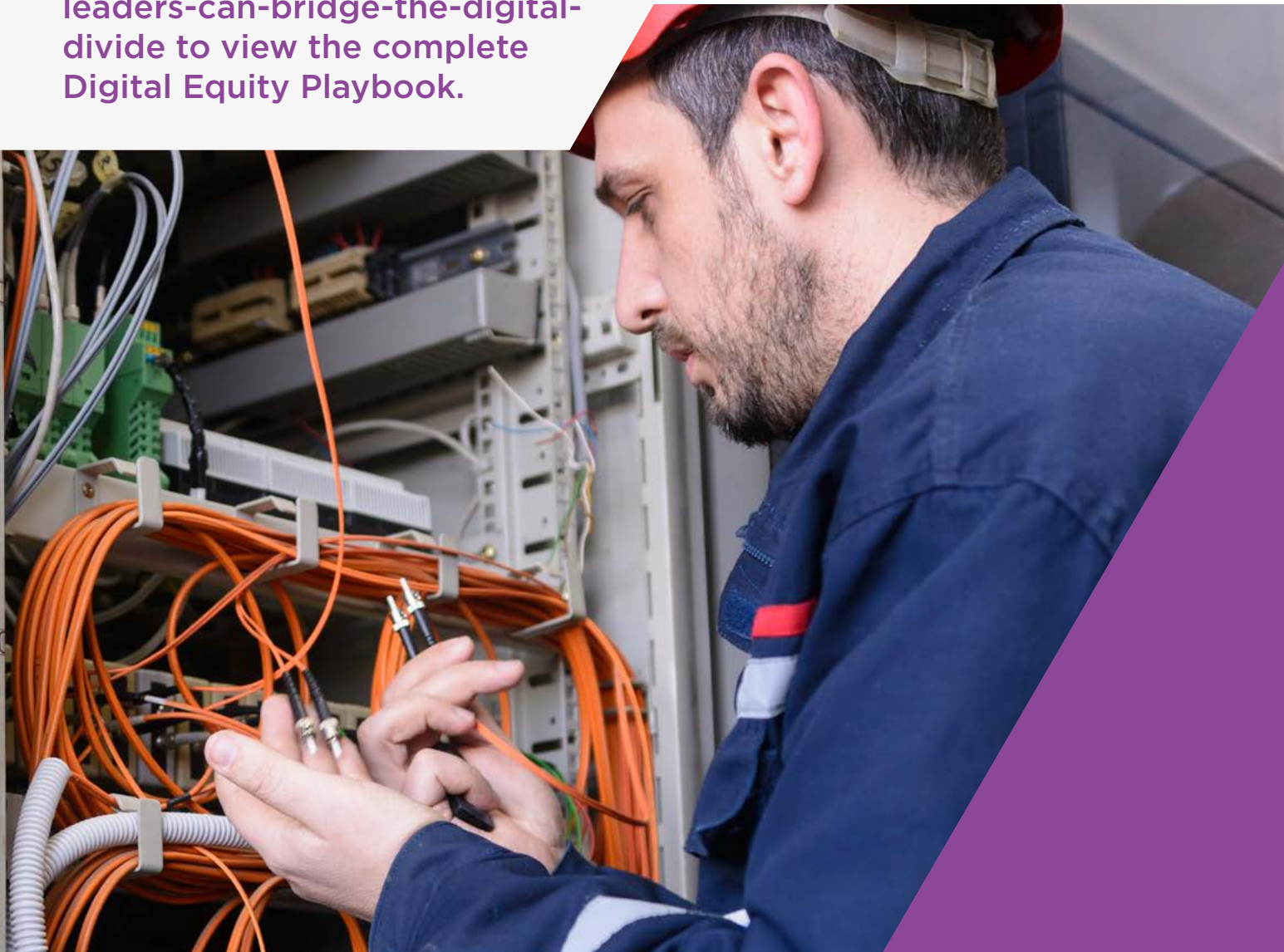
Investing in Digital Equity Solutions: Programs

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Programs

City leaders are establishing programs and working with community partners, their states and the federal government to bridge the digital divide in their communities. These programs aim to increase access to devices and internet service and to build skills so that participants benefit more fully from internet use.

Affordable and free home connections

One of the largest obstacles to bridging the digital divide is lack of access to affordable internet service at home. An estimated 42 million Americans do not have internet access at home.[1] A 2020 analysis found that the U.S. has the highest monthly internet prices, compared to other North American, European and Asian locations.[2] Affordable and free home internet connections are a primary way to get unserved or underserved households online.

Public networks and connections

Access to the internet is just as important when users are outside of their homes. By providing public networks and connections, cities can ensure the community has internet access on the go. These public networks are typically free, local efforts that support a defined area of the city. Cities can operate public network solutions through various underlying infrastructures.

Affordable and free devices

Ensuring that people have devices to access and use the internet is a key step in bridging the digital divide. Mobile hotspots, modems and routers enable users to get online, while tablets and laptops allow them to actually use the internet. These devices can be expensive and may even require monthly fees to use. Affordable and free device programs can help with bulk purchase devices to lower costs, connections to other programs for reduced monthly fees and trusted information.

Digital navigators

At some point, every internet user has to learn the basics. However, not everyone understands the internet's potential benefits or even how to start using it. This is where digital navigators come in. Digital navigators are trusted guides who address the whole digital inclusion process — connectivity, devices and digital skills — through repeated interactions with community members.[3] Digital navigation support can include everything from assistance with signing up for affordable internet access and acquiring the right device, to building technical skills and ensuring online privacy and security.[4]

Digital literacy trainings

Digital literacy is the ability to use information and communication technologies to find, evaluate, create and communicate information, which require both cognitive and technical skills.[5] Digital literacy trainings help participants build these skills. These trainings can be as basic as helping participants start using a computer, connecting to the internet and setting up an email account, or as advanced as teaching participants to code and develop web applications.[6]

Tech support

Digital literacy is the ability to use information and communication technologies to find, evaluate, create and communicate information, which require both cognitive and technical skills. Digital literacy trainings help participants build these skills. These trainings can be as basic as helping participants start using a computer, connecting to the internet and setting up an email account, or as advanced as teaching participants to code and develop web applications.

Endnotes

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Federal Resources for Funding Digital Equity

What federal resources can cities use to fund digital equity?

Various financing and funding options for digital equity efforts are available. Many state and federal funding sources, particularly those established in response to the COVID-19 pandemic, are limited in amount or program duration and may not be available permanently. City leaders should verify all funding information.

Cities can use federal grant and loan programs to support local digital equity work, from needs assessment, to network infrastructure construction, to digital skills training, and broadband device and subscription affordability assistance for residents.

The National Telecommunications and Information Administration (NTIA) maintains a record of all federal funds that cities can use for broadband.

Federal Communications Commission Universal Service Fund Programs

The Federal Communications Commission oversees the Universal Service Fund (USF) to promote broadband development and adoption through four targeted problems administered by the Universal Service Administrative Company (USAC). The FCC's Schools and Libraries program, better known as E-rate, provides discounts for telecommunications and information services, internal connections and basic connection maintenance to schools and libraries.

Emergency Connectivity Fund

The American Rescue Plan Act (ARPA) established a $7.1 billion Emergency Connectivity Fund (ECF) to help schools and libraries support remote learning. The ECF will enable eligible schools and libraries to purchase Wi-Fi hotspots, modems, routers and connected devices. Schools and libraries can also reimburse households for internet service that students need to participate in remote learning.

Lifeline

Unlike other USF programs, the Lifeline program directly supports individuals. The program provides monthly discounts to low-income consumers for phone and broadband services and is available in every state, commonwealth and on tribal lands. Many cities have dedicated significant resources to ensure that their low-income residents enroll in the program.[1]

Emergency Broadband Benefit

Congress appropriated $3.2 billion for a new Emergency Broadband Benefit (EBB) program, which the FCC will administer.[2] The EBB provides eligible low-income households with a monthly $50 discount for broadband service and a $100 discount on an internet-enabled device, such as a laptop, desktop computer or tablet. Eligible tribal households receive a $75 monthly discount for broadband service. The FCC will directly reimburse participating internet service providers.

American Rescue Plan Act State and Local Coronavirus Fiscal Recovery Fund

The ARPA provides $65.1 billion in direct flexible grant support to every municipal government in the nation, to spend in various ways, including necessary investments in water, sewer or broadband infrastructure.[3] The rules for the fund allow cities to spend grant dollars on broadband infrastructure in certain areas and to provide assistance to households facing negative economic impacts due to COVID-19. This assistance could include digital literacy training, paying for broadband subscriptions or devices and other programs that promote internet access.[4]

Other Federal Funds

Cities may be able to leverage other federal grant and loan programs to support digital equity work. The Infrastructure Investment and Jobs Act provides more than $65 billion to promote broadband access through new infrastructure and digital equity grant programs, some of which are directly accessible to local governments. Cities may also be able to access federal funds for which they are not otherwise directly eligible, by partnering with local institutions or organizations, including universities, school and library systems, and local internet service providers. Many federal programs are also administered primarily through state offices. Local governments unable to access federal broadband funding directly may be eligible to participate in state funding or financing programs.

Endnotes

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