TELECOMMUNICATIONS INDUSTRY

Boosting Broadband Adoption and Remote K–12 Education in Low-Income Households

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FOCUS   MAY 12, 2021

When the COVID-19 pandemic swept the US in 2020, the model for K–12 schooling was upended. Educators had to scramble to teach remotely and to continue offering the essential services normally delivered in schools. Parents had to add educating their children to their list of

responsibilities as they coped with the pandemic's economic and emotional fallout. Students had to navigate online learning, many for the first time. However, for the roughly 15 million public-school students in the US who were without access to broadband internet and an e-learning device suitable for distance learning—about 30% of all K–12 students—the situation was more dire. [1]

The pandemic threw into sharp relief the educational and social inequities that characterize the digital divide—the gap between those with and without access at home to broadband internet or a digital device, such as a desktop computer or a laptop. The digital divide disproportionately impacts low-income households, as well as Black, Latinx, and Native American students and rural communities. Numerous studies show that being caught in the digital divide leads not only to lower academic performance but also to lifelong income losses, exacerbating systemic inequities. These consequences are only likely to increase over time as digital skills become foundational to both education and future employment.

Programs to Close the Digital Divide

Historically, programs for digital inclusion in the US have focused on five areas: ensuring broadband service is available to all households; making broadband and internet services affordable for low-income households; helping people understand the need for internet adoption; building people's digital skills; and increasing program participants' ownership of computers, tablets, and other devices. For example, Comcast's Internet Essentials program, which launched in 2011, offers discounted high-speed internet service to low-income households. In addition, Internet Essentials offers training for digital skills and subsidizes computers for these customers. Since its inception, the program has connected a cumulative total of more than 10 million households to the internet. Many other providers offer similar low-cost programs, such as Spectrum Internet Assist from Spectrum, Connect2Compete from Cox Communications, and Access from AT&T.

A New Urgency

The pandemic created an urgent need to accelerate internet adoption at home. In response, internet service providers (ISPs) began partnering with states, municipalities, and school districts, as well as community and philanthropic organizations and other nonprofits, to create sponsored-service programs for low-income households with school-age children. These programs offer a model for accelerating internet adoption by offering broadband internet service at no cost to eligible low-income households. The programs are funded through an agreement between an ISP and a sponsoring organization, such as a municipality, school district, philanthropic organization, or nonprofit. In 2020, Comcast's sponsored-service program, Internet Essentials Partnership Program, commenced with hundreds of partners nationwide. T-Mobile's Project 10 Million and Verizon's Distance Learning Program offer similar sponsored-service programs with partners across the US.

> " Sponsored-service programs offer a model for accelerating internet adoption.

Even though the benefits of no-cost internet have been emphasized, enrollment still has been slower than anticipated. For example, Chicago Connected—an ambitious effort spearheaded by the City of Chicago, Chicago Public Schools (CPS), and the nonprofit education-advocacy group Kids First Chicago—was launched in June to offer internet service from Comcast, T-Mobile, and RCN at no cost to 100,000 eligible CPS students. The program later expanded its eligibility criteria to qualify a total of 235,000 students. More than 50,000 students had enrolled in the program by December 2020, yet many eligible households had yet to enroll. The challenge in Chicago is not unique.

The Need for This Research

Past research into the digital divide, including the 2019 Internet Use Survey by the US Department of Commerce's National Telecommunications and Information Administration, has focused on three key issues: availability, affordability, and relevance. The launch of sponsored-service programs that provided no-cost internet for low-income households with children who suddenly needed to attend school from home created an opportunity to look beyond these typical factors. Through our research, we sought to understand why households remain unconnected even in places where broadband service is available and offered at no cost to eligible households through sponsored-service programs.

This report identifies solutions and best practices to accelerate internet adoption through sponsored-service programs. These recommendations are critical to achieving educational equity and minimizing the risks of the digital divide—including income loss and economic exclusion—for the duration of the pandemic and beyond. As the government pursues additional education and low-income-support programs, the lessons from sponsored-service programs are applicable more broadly. Importantly, the lessons can inform the effective outreach for those programs and their implementation.

The Challenges to Participation in Sponsored-Service Programs

To understand why households remain unconnected and do not enroll in sponsored-service programs, BCG and Comcast surveyed 1,500 low-income households that have school-age children across the US and another 1,000 such households in two metro areas: Philadelphia and Washington, DC. (See "The Survey Methodology.") BCG and Comcast also interviewed more than 35 adults in households with children in grades K–12 and 20 school-district leaders and community partners in three metro areas: Chicago, Philadelphia, and Washington, DC. These cities have robust sponsored-service offerings that include Comcast's Internet Essentials Partnership Program.

─ The Survey Methodology

BCG and Comcast conducted a survey of 1,500 US households from January 6, 2021, through January 11, 2021. BCG and Comcast also surveyed 1,000 households in two metro areas—Philadelphia and Washington, DC—from February 1, 2021, through March 26, 2021.

The households in both surveys were eligible for or were currently enrolled in a sponsored-service program. Specifically, households qualified for the survey if they met any of the following three criteria:

- Two or three members (including a least one child) and a household income that was less than $50,000

- Four to six members (including at least one child) and a household income that was less than $75,000

- Seven or eight members (including at least one child) and a household income that was less than $100,000

The national survey was digitally administered (via a desktop or laptop computer or a mobile phone). Households that were currently enrolled in a sponsored-service program used a wireline or wireless internet provider that serviced their residence; Comcast's Internet Essentials Partnership Program may or may not have been available to these households.

In the metro areas, the survey was distributed through school districts and community partners via email and paper flyers. Currently enrolled households had internet from a provider that offered sponsored service in their metro area; Comcast's Internet Essentials Partnership Program was offered in both metro areas.

The survey asked: "When you first heard about free internet service, did you have any concerns?" The survey then asked a follow-up question about each concern the respondents selected. For example, many respondents indicated that one of their concerns was being confused about how to apply to a sponsored-service program. The survey then asked these respondents if they were confused because there were multiple numbers to call, they didn't have access to the online form, they couldn't get a promo code, they couldn't find resources in their language, or they weren't sure if they qualified.

In addition to conducting the surveys, more than 35 adults were interviewed. The adults lived in households with children in grades K–12 who were in the Chicago, Philadelphia, or Washington, DC, metro areas. These adults were recommended by district officials and partner organizations. Some interviewees were currently enrolled in a sponsored-service program, others had applied but were not yet enrolled, and still others were eligible but had not yet applied. The interviews were conducted in English and Spanish.

BCG and Comcast also interviewed 20 school-district leaders and community partners in the three metro areas. The interviewers spoke with city and district chief information officers, chief financial officers, and leaders who focus on digital inclusion and family engagement. The interviewers also spoke with policy, strategy, and programmatic leads from partner organizations who have first-hand experience raising program awareness and helping households navigate the application and enrollment processes.

The research found four factors that hinder enrollment in sponsored-service programs and limit internet adoption: low program awareness, a lack of clarity about the offerings and processes, a lack of trust in the available services, and structural limitations. (See Exhibit 1.) Structural limitations are physical impediments that prevent or deter a household from enrolling in a sponsored-service program. An example of a structural limitation is a housing situation that cannot accommodate an internet connection or a person not having the right documentation to apply.
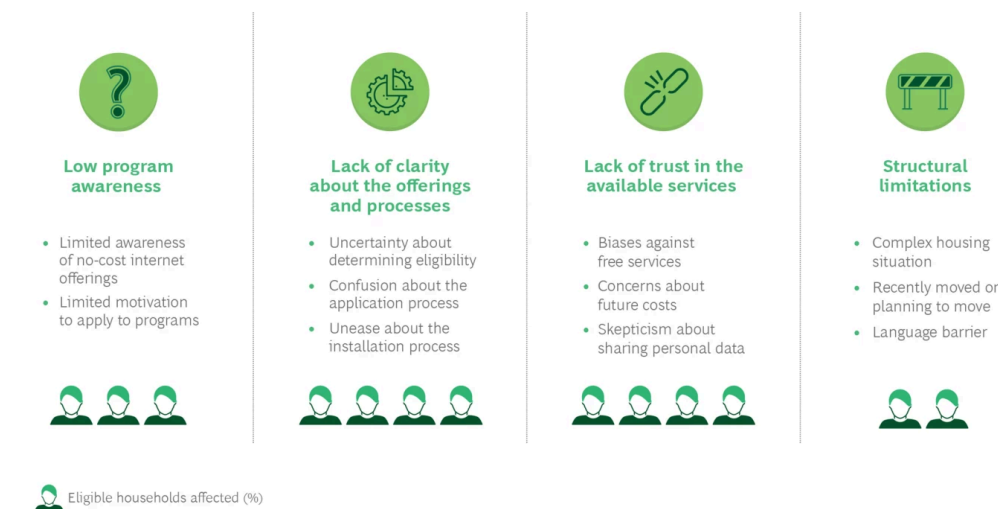
Low Program Awareness

Many households did not apply for sponsored internet service because they did not know it was an option. This could be because the marketing messages did not differentiate the no-cost sponsored offerings from previous programs. As one school-district leader observed, "The families we want to reach probably thought this was the same as the discounted internet programs we had been telling them about for years." Other households simply had little motivation to apply. Explaining the benefits of a sponsored program—the relevance of an internet connection for school-age children and the offering's opportunity—has been even more challenging during the pandemic because of the limits on in-person interactions.
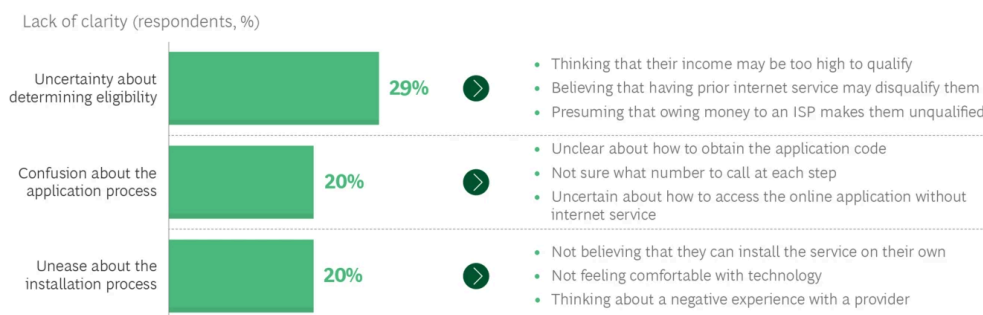
A Lack of Clarity About the Offerings and Processes

In the national survey, 29% of eligible respondents were unsure if they qualified when they first learned about the sponsored-service programs. (See Exhibit 2.) Some were unclear if they met the income threshold; others were uncertain about their eligibility if they already had internet service. Adding to the confusion, discounted internet offerings and sponsored no-cost programs were often promoted to some of the same households simultaneously and with similar branding, despite having different eligibility requirements.

Exhibit 2 - Respondents Lacked Clarity About the Offerings and Processes

Survey question: When you first heard about free internet service, did you have any concerns?

Lack of clarity (respondents, %)

Uncertainty about determining eligibility	**29%** ⊙	• Thinking that their income may be too high to qualify • Believing that having prior internet service may disqualify them • Presuming that owing money to an ISP makes them unqualified
Confusion about the application process	**20%** ⊙	• Unclear about how to obtain the application code • Not sure what number to call at each step • Uncertain about how to access the online application without internet service
Unease about the installation process	**20%** ⊙	• Not believing that they can install the service on their own • Not feeling comfortable with technology • Thinking about a negative experience with a provider

Source: BCG's National Survey on Digital Adoption, January 6–11, 2021.

Note: Respondents had enrolled in a sponsored-service program or had applied to one; n = 872. Since it was a multiple-choice question, the numbers do not sum to 100%. ISP = internet service provider.

Some school districts expanded eligibility in phases to increase participation in the sponsored-service program. For example, Chicago Connected used this tactic to expand the reach of its program from 100,000 to 235,000 households. Such changes, while intended to make the programs more inclusive, can also increase confusion about eligibility and application requirements if not well communicated.

Even when respondents understood the sponsored-service offering and their eligibility, many were confused about how to apply, which made them hesitant to sign up or complete the process. As a partner in a sponsored-service program put it, "People get a flyer and then they're worried they don't qualify, and they don't know what to do next."

One out of five respondents to the national survey found the application process challenging because it included multiple steps: confirming their eligibility with the school district; receiving an application code from their school, district, or a community organization; providing identification; and completing the application with the ISP, which required more information to verify eligibility. A father in Washington, DC, said, "I started an application online, but then it asked for my application code, which I did not have. So, I called my children's school who asked me for some information and then gave me a code. When I went back to complete the application, it said I needed to confirm my ID in person. It felt like there were so many hoops to jump through."

In addition, one out of five national-survey respondents who completed the application also found installing internet service to be challenging, often because of a discomfort with technology or the lack of technical support. As a participant in Chicago explained, "I'm a grandmother trying to help my granddaughter get connected. I've never had internet at home, and when I tried to set it up, I couldn't understand what I needed to do."

Interestingly, there are many parallels between the challenges identified by the survey's respondents and the factors that limit usage and acceptance of assistance programs in other contexts. For example, studies have found that eligible individuals do not claim their earned-

income tax credit owing to similar concerns around eligibility and the mental "hassle cost" of navigating complex forms.
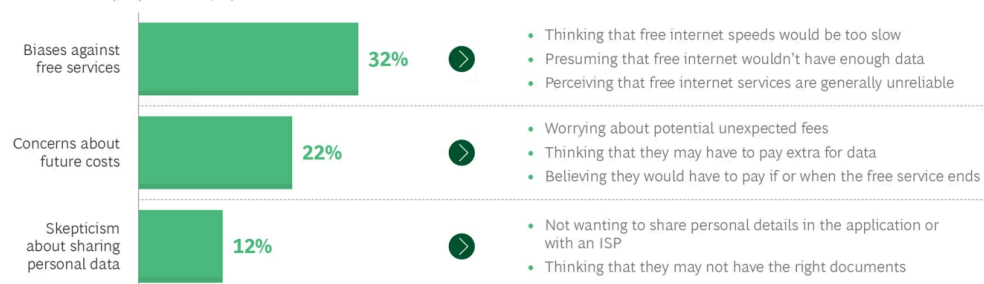
A Lack of Trust in the Available Services

About 30% of the respondents to the national survey were skeptical of sponsored-service programs because of negative associations with free services. (See Exhibit 3.) "People hear it's free, and they think it's too good to be true," explained a partner of a sponsored-service program. "This is especially true when they are already unfamiliar with the technical components."

Exhibit 3 - Respondents Lacked Trust in the Available Services

Survey question: When you first heard about free internet service, did you have any concerns?

Lack of trust (respondents, %)

Biases against free services	**32%**
	• Thinking that free internet speeds would be too slow • Presuming that free internet wouldn't have enough data • Perceiving that free internet services are generally unreliable
Concerns about future costs	**22%**
	• Worrying about potential unexpected fees • Thinking that they may have to pay extra for data • Believing they would have to pay if or when the free service ends
Skepticism about sharing personal data	**12%**
	• Not wanting to share personal details in the application or with an ISP • Thinking that they may not have the right documents

Source: BCG's National Survey on Digital Adoption, January 6–11, 2021.

Note: Respondents had enrolled in a sponsored-service program or had applied to one; n = 872. Since it was a multiple-choice question, the numbers do not sum to 100%. ISP = internet service provider.

Well-established research has found that, indeed, consumers correlate price and value. In 1976, Dutch economist Peter van Westendorp found that consumer pricing preferences for a particular product can be determined by asking four questions. One of those questions is, "At what price would you consider the product to be priced so low that you would feel the quality couldn't be very good?" He found that consumers are unlikely to be motivated to buy products or services that they consider to be too cheap.

Approximately one-quarter of the participants in the national survey also worried about hidden or unexpected fees for installation, equipment, and data usage or about future charges when the no-cost service period ends. A Philadelphia mother said, "I lost my job early in the pandemic, and I'm struggling to pay my bills. I know my kids need internet for school, but I worry about any potential costs—my finances are just really tight."

> " Even if no-cost service sounds appealing to low-income households, potential future costs pose too big a risk.

For low-income households, the uncertainty around potential future costs poses too big a risk, even if the offering sounds appealing. These households, especially those with school-age children, often struggle to pay for basic needs (food and rent), and they are not well prepared to handle even small, unexpected expenses. For these households, any potential for unforeseen costs can heighten their fears.

Other respondents were reluctant to provide personal information, especially a Social Security number (SSN), during the application process. "They see SSN on the application," said one program partner, "and they get scared—even when it's optional." Requests for any personal information can trigger worries about immigration status, owing money, and identity theft. Identify theft can be particularly devastating for low-income consumers. It not only disrupts immediate financial support but also jeopardizes continued needs-based benefits, such as the Supplemental Nutrition Assurance Program.

It is important to note that while some concerns around providing an SSN and other identifying information can be overcome by building trust, other concerns are structural limitations. For example, some households are unwilling to provide any identifying information to an organization or to participate in any service program.

Concerns about providing personal data were compounded by the fact that using an alternate form of identification often required uploading documents or pictures. This, in turn, introduced technical challenges for some individuals. "Not all of our parents use [email] or even have an email [address]," a student commented. "So, if you ask them to email a photo of their ID or a selfie, it's going to be hard for them."

Structural Limitations

A small group of national survey respondents—approximately 15%—were unable to access internet services because of housing-related challenges. For example, a partner organization said, "We've got a lot of 'unofficial' apartments in the city…. It might be a basement unit or one located in what's technically labeled as a single-family home." The problem is this: if a person at an address already has wireline internet service, the ISP may not offer the option of installing a second wireline service.

A small fraction of the respondents indicated that they did not have internet service because they had recently moved. Low-income households have experienced higher-than-usual levels of housing insecurity during the pandemic. Transience deters people from investing time in setting up internet service.

Often, households without broadband service access the internet through a variety of alternative, often temporary, solutions. These include paying neighbors for service, accessing public internet hot spots, or making use of school hot spots. An interviewee said that she paid her landlord $10 a month for internet service.

Four Steps to Make Programs Stronger

After analyzing the results of the national and metro-area surveys, the information gathered from the interviews, and the best practices gleaned from Comcast's Internet Essentials Partnership Program, we identified four key steps to make no-cost sponsored-service programs more successful. (See Exhibit 4.)

Exhibit 4 - Taking Four Steps Can Improve Outcomes

Strengthen communications	Adapt the program's design	Expand support	Conduct ongoing research
Build awareness of the sponsored-service program by sharing clear and consistent information through trusted channels	Streamline the application process, clarify the installation instructions, and ease eligibility requirements	Establish trusted sources that can offer guided one-to-one assistance and teach digital skills	Continue to draw from best practices and regularly assess sponsored-service programs to ensure that they target and reach households in need

Source: BCG analysis.

Strengthen Communications

Communications should explain a program in clear, nontechnical language. Flyers and marketing materials should highlight key eligibility messages, specify where to apply, and avoid fine print that may raise concerns. They should also emphasize the service quality and underscore that enrolling

will not lead to debt, unexpected charges, personal data being sold to marketers, or other negative outcomes typically associated with free offers. The program should be marketed as a no-cost service to clarify that one or more third parties are paying for the service and to address negative perceptions about free services.

Trusted sources (such as educators, faith leaders, and community organizations) should share program information with students and those in their household and encourage them to enroll. For example, teachers can have their students discuss program information at home as part of a homework assignment, and districts can promote the program in weekly newsletters. Phone calls, home visits, and flyer distribution in frequently visited locations (for example, food pantries) are an effective means to boost awareness among the hardest to reach. In addition, those who are currently enrolled in the program can act as neighborhood ambassadors, using personal stories to encourage people to sign up and spread the word. Messaging should be consistent across all channels and in all situations.

For example, Arlington Public Schools in Virginia used school-based connectivity teams, composed of teachers, counselors, and administrators, to make students and the adults in their household aware of the sponsored-service programs. The district also relied on the trusted relationship between parents and community leaders to disseminate information. By January 2021, more than 900 of the 1,000 students originally identified as lacking internet access (a list that was compiled using data from the student information system) had internet service at home, and the district had a 99% participation rate in distance learning.

Similar approaches are currently being taken to accelerate the acceptance of vaccines in underserved areas. To overcome trust barriers, vaccine campaigns are enlisting trusted messengers who live, work, and worship in the communities to amplify messages using personal stories.

Adapt the Program's Design

Improvements to a program's enrollment process, as well as changes to the program's offering, can help boost enrollment and drive internet adoption.

The complexity of district and ISP applications—and the time it takes to complete them—often deter potential applicants. Decreasing the number of steps in the enrollment process was the top improvement suggestion from respondents to the national survey who have applied to sponsored-service programs. Programs could allow applicants to confirm eligibility using their phone number or another form of official identification, rather than a Social Security number, to minimize challenges and hesitancy around personal information sharing. Programs could also reduce the amount of information that applicants must provide by putting the right data-sharing and data-privacy protocols in place so that school districts can share student eligibility information directly with ISPs. This would create a more seamless application process for households and improve coordination between ISPs and program sponsors.

Installation instructions could be made clearer with step-by-step illustrations of the installation process that are easy to follow for adults with limited technical experience. This could be done in print and using video. To boost installation success rates, school districts could select certain schools as distribution points for installation kits and provide technical resources to help with the installation.

Finally, changes to the program offering (including improving broadband speed, clarifying program costs, and expanding eligibility) could further increase internet adoption. ISPs could boost broadband speeds to be more in line with full-price offerings or make a sponsored program available across a variety of service offerings. Given households' concerns about costs, programs should be transparent about any future fees or costs, explain them clearly, and ensure that enrollees consent to any future costs when signing up for the no-cost program. In addition, programs could simplify eligibility criteria (for example, to include all low-income students) and ensure changes to eligibility requirements are clearly communicated.

Expand Support

About 40% of respondents to the national survey ranked "having someone walk me through the process step by step" as one of their top three suggestions for how to make applying easier. Trusted community organizations and local high schools and colleges should be enlisted to recruit volunteer technology ambassadors to fill this role. These volunteers would offer one-to-one guided assistance to eliminate confusion and overcome challenges related to a low level of technical literacy.

The Philadelphia-based Community Learning Center's Digital Navigator program is one ambassador model. The center, a nonprofit focused on expanding academic and economic opportunities for disadvantaged populations, designed its one-to-one guidance program to help participants access technology and the internet, answer their technical questions, and refer them to the appropriate ISP call centers.

ISPs can also help by having call center teams that are assigned to sponsored-service programs and staffing them to ensure fast, reliable, and effective support with minimal hold times. In addition, all members of each ISP's customer service teams should at least be aware of the program and be able to redirect a potential customer to the targeted support team.

It is also critical to help adult participants build their digital literacy so that they understand how to use devices, the internet, and security and privacy safeguards, for example. Having such knowledge would make it easier for them to follow the application and installation processes on their own, educate themselves about potential costs (such as data usage charges), get comfortable with their broadband service, and continue learning.

Chicago Connected enlisted more than 35 community organizations to increase participation. Together, they built awareness and trust. For example, Chicago Public Schools coordinated with

community organizations to set up hotlines to offer one-on-one assistance for the application and installation processes. A leader from Chicago Connected noted, "The network of community organizations has been one of the keys to our success. When a household has someone they trust advocating for them and helping them navigate both real and perceived barriers, our outreach has been way more successful." The program continues to iterate in order to increase adoption. Recently, it set up a project-wide working group to identify the digital literacy resources needed by applicants and participants.

Conduct Ongoing Research

The rapid launch of sponsored-service programs since the start of the pandemic has provided a unique opportunity to test multiple enrollment approaches. If not for the pandemic, this form of a natural experiment with various types of partners and participants might not have occurred. The key lessons and best practices identified are critical to developing scalable models that can be replicated across cities.

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To maintain and expand these programs, ongoing data collection and research are needed. Surveys, such as the one that served as input for this report, are critical to assess the key factors that continue to deter program enrollment and internet adoption. For example, a school district with the proper protocols in place could use student information systems to determine which students are eligible and provide that information to ISP partners on an annual basis. Educators, education technology companies, and ISPs should continue to collaborate on research to ensure that communications, program design, and support infrastructure meet the needs of adults and students.

To accelerate program enrollment, it helps to have a core team of representatives from the relevant ISPs, school districts, and community organizations. This team should meet regularly to track enrollment and engagement and troubleshoot challenges. The latter could include improving outreach methods, streamlining the application and installation processes, and providing other types of support. At a national level, policymakers, national education organizations, and broadband associations can help establish national program guidelines and best practices.

The Players That Are Key to Success

The sponsored-service programs that emerged during the pandemic benefit from their multiple-stakeholder model. Through collaboration and partnership, these stakeholders can tackle issues and build trust among the people they want to serve.

Here, we recommend actions that each stakeholder group can take individually to support the success of sponsored-service programs.

- **Internet service providers** can codify lessons and best practices from their sponsored-service programs to develop consistent, scalable models. They can lead efforts to clarify and expand eligibility and simplify the application and installation processes. ISPs can also play a key role in arming districts and community organizations with up-to-date program collateral and digital resources, including informational videos and webinars.

- **School districts** can serve as a hub for program communication and execution. They should identify households that lack in-home connectivity or that need technical assistance. School districts should also serve as the primary point of contact for eligible households. In partnership with ISPs, districts can track progress toward specific goals. Through ongoing research on current and future digital-learning needs, districts can also help improve the program's design.

- **Community organizations,** as highly trusted resources, can reinforce program marketing, recruit and support applicants, and help participants build their digital and technical skills. They are also well positioned to be the voice of applicants and participants, sharing feedback directly with districts and ISPs.

- **Industry associations, educational institutions, and civil rights organizations** can play a key role in unifying and amplifying messages. They could, for example, advocate for standardized eligibility requirements and program structure for sponsored-service programs as well as coordinate further research on factors limiting internet adoption.

- **Policymakers,** in conjunction with other stakeholders, can offer a sustainable source of funding for digital education and skills building. Policymakers can also help with the program's structure by giving guidance and proposing guardrails regarding who should be eligible and how funding should be used.

Accelerating Digital Adoption in a Postpandemic World

The pandemic has highlighted the extent of the digital divide and created massive disruptions for schools and students. It has also provided an opportunity for private, public, and philanthropic organizations to develop responses to these challenges that will last long after the virus is tamed. Even as vaccines become available and students return to in-person learning, closing the digital divide remains essential because schools are increasingly using online platforms for learning and jobs are increasingly requiring digital skills.

The Coronavirus Aid, Relief, and Economic Security Act (March 2020), the Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA) of 2021 (December 2020), and the American Rescue Plan (ARP) Act (March 2021) all include critical funding to address the digital divide. Across all three, nearly $200 billion was allocated to K–12 education that can be used for a variety of pandemic-related expenses, including distance learning. In addition, CRRSAA allocated $3.2 billion to support the new Emergency Broadband Benefit, which helps eligible lower-income households pay for both broadband service and computing devices. The ARP Act also allocated $7.1 billion to expand the E-Rate program for internet connectivity in students' homes.

Although this funding is significant, it is insufficient to close the digital divide for the long term. To close the digital divide permanently, solutions must ensure that broadband internet access is available to all households, that service is affordable, and that adoption challenges related to relevance, digital skills, and trust are fully addressed. This will require sustainable funding streams and ongoing government support through a modernized Lifeline program for low-income households, for example, and through targeted rural deployment efforts to connect unserved households.

Sponsored-service programs are—and can continue to be—valuable models to accelerate broadband adoption. This report offers a deeper understanding of what is needed from all stakeholders to make these programs effective and increase internet adoption among low-income households with school-age children. With ongoing investment, sponsored-service programs can continue to offer internet at no cost and to engage multiple stakeholders to build awareness and support internet adoption.

The lessons captured and codified in this report that apply in K–12 education are also relevant in many other areas that are vital to economic well-being. As the government pursues additional low-income support programs to promote internet connectivity, lessons from sponsored-service programs can also inform the effective design and implementation of programs in areas such as health care, finance, and employment.

Closing the digital divide is itself a learning journey. It is important to continually assess barriers to internet adoption as digital technology and people's needs evolve. Ultimately, achieving full digital

connectivity and permanently closing the digital divide is critical not only to attaining educational equity but also to accomplishing all endeavors to promote equitable economic and social opportunity.

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1 *Looking Back, Looking Forward: What It Will Take to Permanently Close the K–12 Digital Divide,* Boston Consulting Group, Common Sense, and Southern Education Foundation, 2021.