Achieving Digital Equity in New York

An Outline For Collaborative Change

June 2021

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Introduction

The COVID-19 pandemic has highlighted inequities in the access and use of information and communication technologies. These disparities impact individuals within a broad range of areas including education, workforce development, and healthcare.

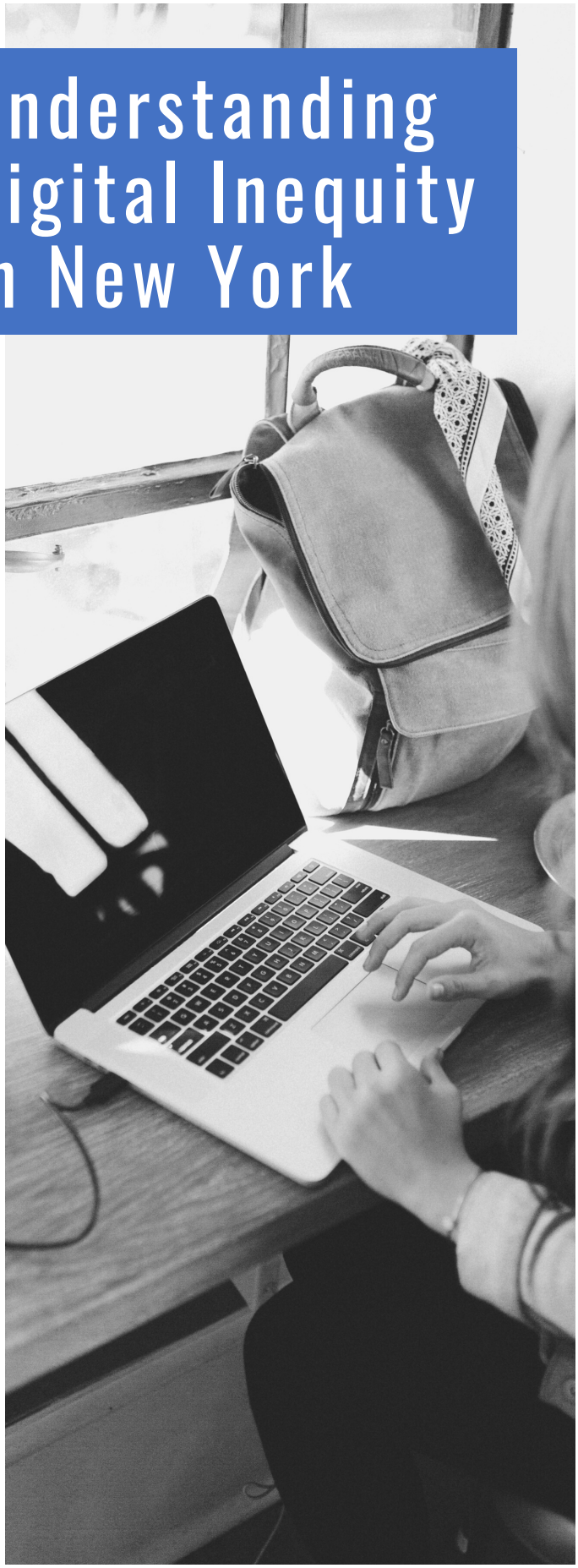
In 2021, the New York State Education Department and the Board of Regents convened two Digital Equity Summits to establish a shared understanding of digital inequity and create a joint vision toward achieving digital equity in New York State. The summits brought together education, government, community, and business partners to recommend both short-term and long-term next steps at all levels—federal, state, local, and organizational.

A third Summit will be convened on June 15, 2021 to look specifically at digital equity issues in an education setting.

The summits comprised presentations by national experts followed by breakout discussions. Participants took part in facilitated small group discussions, sharing their ideas, expertise, and experiences. From these discussions, the Department compiled the information shared, using an equity lens for analysis to highlight existing and emerging solutions that can serve as exemplars for digital equity work and identify opportunities for system and policy change.

Appendix A: *New York State Department of Education Digital Equity Summits: Summary of Expert Panelist and Summit Participant Discussions*

Understanding Digital Inequity in New York



1

DISPARITIES AROUND INCOME AND RACE

2

DIGITAL EQUITY AND SCHOOLS

3

GOVERNMENT EFFORTS TO ADDRESS DIGITAL INEQUITY

1. Disparities Around Income and Race

State level data through the American Community Survey (ACS) provide additional context to inform our understanding of existence and persistence of a digital divide in New York.

In a data study commissioned by the State Education Department, Dr. John B. Horrigan found that digital access varies greatly across geography and socio-economic groups. The data show that rates of low adoption exist in urban and rural counties and seem to result more from affordability than the availability of service. Although internet access remains a challenge in parts of the state, affordability serves as the most significant barrier to internet adoption.

The major data points to understanding digital inequity in New York include:

- Nearly 27% of New York households do not subscribe to wireline broadband service at home.

- Some 22% of New York households do not have a desktop or laptop computer at home.

- **Poor New Yorkers, older adults, and communities of color have low adoption rates of digital tools.**

    - Half of New York's lowest income residents (those whose annual incomes are $25,000 or less) do not have a wireline broadband subscription and half lack a computer.

    - 40% of older (age 65 and above) New Yorkers do not have wireline subscriptions for internet service and about one-third do not have a computer.

    - One-third of African American and Latino households do not have wireline broadband at home and similar numbers do not have a desktop or laptop computer.

- **Rural New York households are less likely than metropolitan dwellers to have wireline service, but low-income rural New Yorkers struggle affording service in the same way as their counterparts in metropolitan areas.**

    - Lower-income rural areas (e.g., in the western part of the state), as well as some urban library locations (e.g., the Bronx), have home wireline adoption rates that are 20 percentage points lower than wealthier counterparts.

    - Some library system regions with low population density and (on average) healthy household incomes have broadband adoption rates above the state average.

Appendix B: *New York's Digital Divide: Examining adoption of internet and computers for the state and its library districts*

2. Digital Equity and Schools

In the spring of 2020, when schools closed due to COVID-19, the New York State Education Department conducted a survey to measure students' access to adequate internet and devices. To gain a more complete picture of the status of digital equity for New York State students and teachers, the survey was re-released in fall of 2020. NYSED received responses from 99% of public schools, charter schools, BOCES, and approved private, state-operated, and state-supported schools that serve school-age students with disabilities. Though the spring 2020 survey results were incomplete, a comparison with the fall 2020 data did show decreases in the number of students without access to a computing device and/or sufficient internet.

NYS schools, districts, and BOCES have provided hundreds of thousands of devices to our New York State students over the past year for use in their places of residence. As of January 2021, schools reported approximately 93% of students in New York have internet access and approximately 91% have devices to support their virtual learning.

Evident in the survey findings was the ability of our state's school districts and their partners to address this massive problem so quickly, which illustrates the value in prioritizing digital equity. The survey findings also suggest that when digital equity is a uniform priority, resources can effectively address the problem. Lastly, the survey results seem to indicate that the most effective digital equity work can happen at the local level, through partnerships and collaboration.

Appendix C: *NYSED Report on Fall 2020 Digital Equity Survey*

3. Government Efforts to Address Digital Inequity

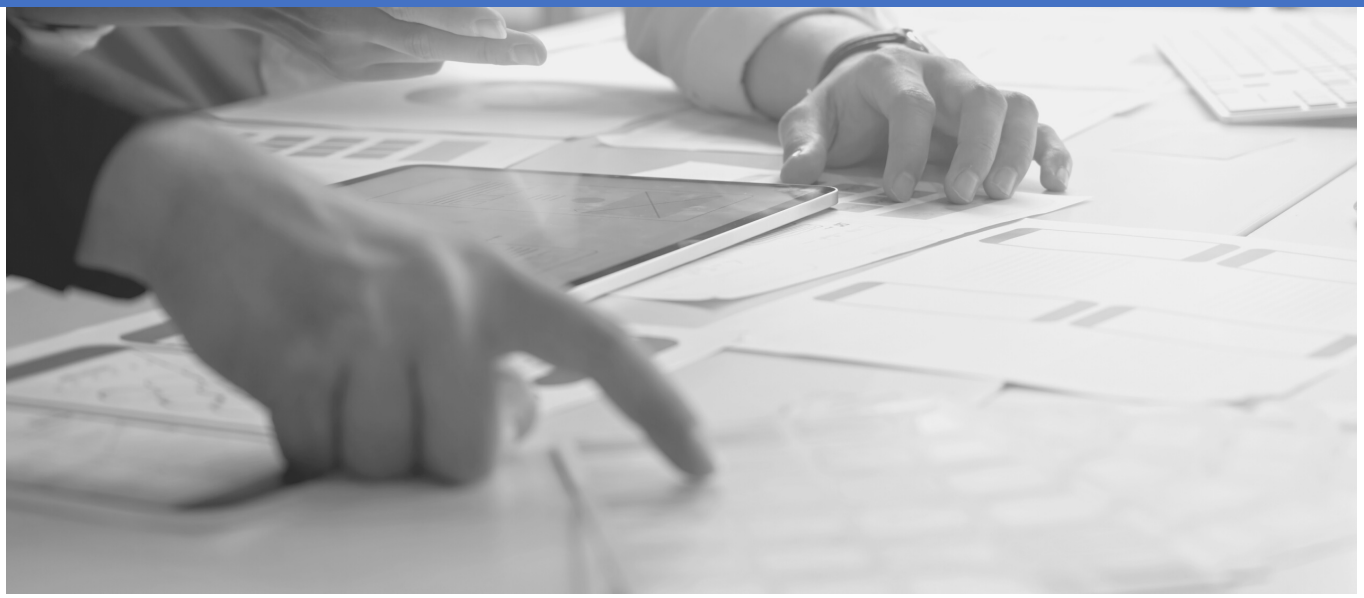
This is a moment with tremendous opportunity, with significant investments and policies being implemented at the federal, state, and local levels to increase the availability and affordability of internet.

At the time of writing, the Federal government has just launched major investments in broadband infrastructure, including the Emergency Connectivity Fund, an E-rate Program to allow emergency connectivity through schools and libraries, and the Emergency Broadband Program, a federal subsidy to temporarily reduce the cost of household internet subscriptions for low-income households. Additionally, $350 billion is allocated in the American Rescue Plan of 2021 (ARPA) to state, local, territorial, and Tribal governments for

the purpose of “laying the foundation for a strong and equitable recovery,” which can fund capital investments in internet infrastructure.

New York State’s 20/21 Budget includes the requirement that internet service providers offer $15 or less monthly cost for low-income consumer access to broadband service to increase digital equity. The Budget also requires the Public Service Commission to study and map out availability, reliability, and cost of high-speed internet and broadband services in New York State. In addition, the Budget sets aside $15 million in federal funding to allow the State Education Department to implement a program to provide resources and technical support for individuals and households who are economically disadvantaged and to further assist in bridging the state’s digital divide.

Outline for Collaborative Change



The Board of Regents and New York State Education Department have a vision of ubiquitous internet access, device ownership, technical support, and digital fluency skills for all New Yorkers.

By working together across levels of government, across sectors, and across disciplines, New York can achieve this vision. Based on conversations with stakeholders and experts at our Digital Equity Summits, the Department has identified three priority areas for change that can result in meaningful progress in our work toward digital equity.

The following recommendations are a blueprint for change to help guide the work of organizations and decision-makers at all levels to put the systems and structures in place that will ensure these valuable federal and state initiatives benefit New Yorkers.In this document, specific responsibility is not assigned; partners in this effort are asked to identify the places where they may aid in progress. The State Education Department intends to lead by example, leveraging our capacity and resources to further these change ideas in whatever ways are feasible and appropriate.

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State-level Prioritization of Digital Inclusion

Although New York State has and continues to invest considerable funding and attention in broadband access, until now those efforts have not been accompanied by a proportional investment in digital inclusion efforts to improve broadband adoption. State government is an essential partner is ensuring that New Yorkers have both access to affordable, robust broadband internet service and the devices, training, and support they need to fully benefit from the opportunities the internet promises.

New York State is in a unique position to lead cross-sector, cross-departmental, multi-faceted digital inclusion activities that can impact the entire state. The state's knowledge, coordination, convening ability, and expertise, along with its relationships with local governments and residents, provide a unique opportunity to expand digital equity.

There are still people across the state without access to the internet in their places of residence, and cost remains the most significant barrier to internet adoption. Building infrastructure for access without accompanying policy to provide person-centered support and engagement will fail to achieve digital equity goals.

Digital inclusion refers to the activities necessary to ensure that all individuals and communities, including the most disadvantaged, have access to and can make use of information and communications technologies. This includes five elements:

- Affordable, robust broadband internet service;
- Internet-enabled devices that meet the needs of the user;
- Access to digital fluency training;

- Quality technical support; and
- Applications and online content designed to enable and encourage self-sufficiency, participation, and collaboration.

Digital inclusion activities must continue to evolve as technology advances, which requires intentional strategies and investments to reduce and eliminate historical, institutional, and structural barriers to access and technology use.

Short-term Strategies for Organizations Operating at a State Level:

- **State level:** Develop and support outreach channels to help eligible populations sign up for the federal Emergency Broadband Benefit internet subsidy program and other low-cost internet offers. This could include funding partnerships with trusted community-based organizations and developing train-the-trainer programs for public-facing state agencies, libraries, community-based organizations, and others.

- **Regional and State Levels:** Map digital inclusion assets and resources available at regional, state, and federal levels. Compile a directory of these resources for use by digital inclusion practitioners and to inform individuals and organizations serving in Digital Navigator roles.

Mid-term Strategies for Organizations Operating at a State Level:

- **State Level:** Develop a statewide Digital Navigator training program for libraries and their community partners. Digital Navigators provide person-centered assistance to address the entire digital inclusion process – home connectivity, devices, and digital skills – to assess a community member's needs and competently guide them toward resources that are suitable both for their skill level and lifestyle. Ideally, Digital Navigators would be centralized at public libraries and localized community-based organizations with specialized expertise that could help community members access the specific resources they require.

Long-term Strategies for Organizations Operating at a State Level:

- **State Level:** Establish a State-level presence to coordinate and convene statewide efforts to target and eliminate digital equity gaps. Pilot robust, systems-level digital inclusion partnerships in diverse communities with the goal of scaling statewide. Pilot technology-neutral and community-stewarded approaches to expand internet access.

Thriving Digital Equity Ecosystems Across the Entire State

Digital inequity is a complex and multi-faceted problem, and closing digital equity gaps will require the coordination, cooperation, and the intentional capacity-building of the many organizations supporting digital inclusion across New York. Nearly every organization in every sector has a role and responsibility in the work to achieve digital equity, and organizations across all sectors that work with underserved populations have a role in digital inclusion. For example, legal aid organizations must now help their clients access the internet to stay connected to court proceedings. Organizations providing services to families experiencing homelessness need to help the people they serve get sustained access to the internet to find employment, access social services, and complete homework in sometimes complicated and transitional situations.

Establishing connections between these disparate organizations can help regions develop person-centered models for digital inclusion services, addressing connectivity, devices and support holistically and in direct support of individuals' goals. A robust and connected digital equity ecosystem can break down silos and support the shift from traditional digital inclusion models—such as building-limited WiFi, device loaning, and digital literacy classes—to emerging models intended to achieve household internet access, device ownership, and full range of goals-based digital literacy skills and sustained technology support.

More formalized digital equity coalitions can raise the profile of the digital inequity issues, align the perspectives and efforts of community players operating in the space, and can establish the framework for collective action, collaboration, and working partnerships. Importantly, establishing coalitions now will prepare communities and regions to put federal, state, and philanthropic funding to good use when it's available for digital equity work.

Short-term Strategies to Develop Healthy Digital Equity Ecosystems:

- **Regional and State Levels:** Build open and accessible digital equity data portal to guide the decision-making and planning of coalitions, organizations, and funders. Define change metrics and use them to track and evaluate progress.

Mid-term Strategies to Develop Healthy Digital Equity Ecosystems:

- **Regional Level:** Develop and support place-based digital equity coalitions which operate openly and with a structure that is built on and intentionally seeks the participation of diverse organization and stakeholders.

- **Local and Regional Levels:** Create regional or local digital equity plans to address equity gaps in both access and adoption. These plans can serve as

the basis for requests for anticipated federal and philanthropic funding for digital equity work.

- **Local and Regional Levels:** Through partnerships and collaborations, shift digital inclusion priority efforts from building-restricted WiFi and device loaning models to household internet and device ownership models.

Long-term Strategies to Develop Healthy Digital Equity Ecosystems:

- **Local, State, and Regional Levels:** Support the development or expansion of non-profit device refurbishment programs with digital equity missions.

- **State Level:** Establish a state-level digital equity advisory committee to assist in the identification of broadband access gaps, target investments to the areas with the greatest need and highest demand, and ensure that the communities affected by digital divides are involved in decision-making to close digital equity gaps.

A Shift from Digital Equity to Digital Justice

It's impossible to separate the root causes of digital inequity from the root causes of racism, opportunity gaps, and other systems of oppression. The work ahead provides an opportunity to imagine other systems for community empowerment; to design digital equity solutions to achieve racial justice; and to center people typically excluded from online participation due to race, income, disability, language, sexuality, geography, or other barriers in digital equity planning and solution implementation. There is a near unified call from advocates to establish the "internet as a utility," which is an important regulatory distinction, but also provides an opportunity to think of internet as public infrastructure rather than a commodity.

Establishing shared community-developed values around data privacy and surveillance, accessibility, and environmental sustainability can help ensure that the solutions that are implemented will result in solutions that will have positive lasting impact.

Short-term Strategies toward Digital Justice:

- **All Levels:** Develop a diversity, equity, and inclusion framework to guide the development and evaluation of digital equity work at organizational, regional, and state levels.
- **All Levels:** Center racial equity as a driver of the of work, not just an outcome of the work.

- **Regional and State Levels:** Rather than favor and exclusively fund telecommunications incumbents, allow broadband infrastructure funds to support community-driven networking solutions.

Mid-term Strategies toward Digital Justice

- **Local and Regional Levels:** Develop digital stewardship models to include community members in the designing, building, and maintaining of digital equity solutions; empower community members to embrace their roles as technologists.

Long-term Strategies toward Digital Justice

- **All Levels:** Make available data demonstrating the effectiveness of broadband infrastructure investments, special pricing, philanthropic grants, and other digital equity efforts to connect people of color, people with lower incomes, and other disproportionately affected people and communities.

Immediate Next Steps for NYSED:

The work ahead will be challenging and rewarding, and the Department looks forward to implementing these strategies alongside our partners and the communities they serve. Our next steps as a Department will be to:

- Prepare the state and our partners and stakeholders to make effective use of federal stimulus money and promote federal digital equity programs.
- Continue to expand on the goals above and the change ideas shared by our stakeholders at the Summit and share this information with our network of partners.
- Host a third and final Digital Equity Summit on June 15, 2021 to explore digital equity issues as the pertain to education specifically.
- Develop a digital equity plan for the Department, leveraging the Department's capacity in addressing the above change ideas where feasible and appropriate.

Resources supporting these recommendations and detailing the results of the Digital Equity Summit are available at www.nysl.nysed.gov/digitalequity.

The Digital Equity Summits and this report were supported in part with federal Coronavirus Aid, Relief, and Economic Security (CARES) Act funds allocated to the New York State Library by the Institute of Museum and Library Services (IMLS).

CCNETWORK Comprehensive Center Network

REGION 2
Connecticut
New York
Rhode Island

New York State Department of Education Digital Equity Summits

Summary of Expert Panelist and Summit Participant Discussions

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Contents

Introduction

To serve as a reference for anyone interested in addressing digital inequity in their communities, this document synthesizes information from Digital Equity Summits that involved stakeholders and experts from throughout New York State and beyond. It may serve as a useful starting point for communities undertaking similar efforts of engaging stakeholders who have experienced firsthand the negative impacts of digital inequity. Such engagement can be a first step in crafting a shared vision, along with ambitious yet realistic goals and strategies for taking immediate action toward achieving digital equity.

The process that led to this report has truly been a collaborative effort. Many thanks to the diverse group of individuals from various sectors who devoted countless hours to lead this effort, and to those who shared their knowledge, expertise, and experiences, as well as those behind the scenes who provided logistical support.

The Digital Equity Summits were supported in part with federal Coronavirus Aid, Relief, and Economic Security (CARES) Act funds allocated to the New York State Library by the Institute of Museum and Library Services (IMLS). The summits and the development of this report involved partnerships among the New York State Education Department, the Region 2 Comprehensive Center at WestEd, the Regional Educational Laboratory Northeast and Islands (REL-NEI), and the National Digital Inclusion Alliance (NDIA).

Background

Even before the COVID-19 pandemic, the New York Board of Regents and the New York State Education Department (NYSED) had identified inequitable access to technology and internet services in students' and teachers' places of residence as a priority issue to be addressed. The closure of New York schools in spring 2020 and the subsequent shift to remote learning — followed by many districts shifting to hybrid schooling in the 2020/21 school year — shined an even brighter light on the digital inequities that many students and families were experiencing. Similar shifts occurred in nearly every aspect of life, including employment, civic participation, and healthcare. For example:

"[The] pandemic removed the curtain and showed the inequities that society had been hiding." Anderson Fils-Aime, Digital Equity Summit 2, March 2021

- Libraries diverted funds to their digital collections and conducted programs online. The closure of library locations took away building-based Wi-Fi from community members.
- Many New Yorkers became unemployed and had to apply for benefits online or were working remotely from home. Businesses had to adapt their services and embrace social media and other online tools to communicate with customers.
- Many healthcare visits were conducted online, which required people to use online tools to schedule telehealth appointments, access a patient portal, or schedule a COVID-19 test or vaccination appointment.

Recognizing the immensity of the problem in terms of the impact that digital inequity was having on students, their families, and the community at large, NYSED realized that the education sector could not solve the problem alone.

Accordingly, NYSED invited a wide range of stakeholders and experts representing education, government, business, and community organizations to participate in Digital Equity Summits in order to gather input about the challenges of digital inequities and potential solutions. NYSED's pursuit of this topic has been guided by the belief that digital equity depends on every New Yorker having:

- affordable, consistent access to the internet in their places of residence;
- appropriate devices for their needs;
- access to digital literacy training in order to develop digital fluency; and
- technical support.

Digital Equity Summit Designs

The Digital Equity Summits were designed to begin identifying ambitious yet realistic strategies to achieve digital equity in New York, based on establishing a shared understanding of the problem and its root causes. More specifically, the summits sought to establish a framework for a statewide conversation with the following imperatives:

- Ensure that the emergency measures that helped education partners implement solutions so quickly during the COVID-19 pandemic can be sustained in the long term.
- Learn from these successes to address digital equity for all New Yorkers.
- Focus on the training and support systems necessary to help people use the internet successfully once internet access and devices become available through federal, state, and local efforts.

To gather stakeholder and expert input on these issues, NYSED convened two Digital Equity Summits in early 2021, with a third planned for June 2021. NYSED invited a broadly representative group of stakeholders from the following sectors:

- preK–12 and higher education
- internet service providers (ISPs)
- philanthropy
- private technology
- local government
- state government
- workforce development
- organizations serving and representing excluded populations
- media and arts
- advocacy

Approximately 400 people attended the first two summits, both of which were held virtually.

Summit 1

The first virtual summit took place on February 5, 2021, lasting about three hours total, and looked at root causes of digital inequity. It began with a keynote presentation by Rebecca F. Kauma, Economic and Digital Inclusion Program Manager for The City of Long Beach, CA, titled "Advancing Digital Inclusion Through Racial Equity and Collective Impact." Then stakeholders

were given the opportunity to weigh in during small, facilitated breakout sessions in which participants were asked to respond to three guiding questions:

- How are digital inequities impacting you or others?
- What are the specific circumstances that lead to digital inequities? What are the root causes?
- What change ideas can you suggest that can address these root causes?

Summit 2

The second summit was held on March 8, 2021 and lasted a total of about four hours. Based on participant input from the first summit, the following problems were identified and became the focus of the second summit:

- There are too few choices of affordable broadband providers; their offerings are limited and varied in reach and quality.
- The people most affected by digital divides are not always engaged in the work to solve digital inequity.
- Not all New Yorkers have a reliable personal computer that meets their needs.
- Even when devices and internet services are available, community members often do not have the support needed to make use of these tools.
- Educators, workforce trainers, and other intermediaries are under-skilled and underprepared to provide digital skills support.
- Digital inclusion programs do not leverage partnerships with other organizations that work on digital inclusion.

This summit focused on fleshing out ideas about these issues through discussions about real-world problems and ultimately by imagining the types of real-world solutions that can make these change ideas become reality. A series of panel discussions provided participants opportunities to learn from experts about topics that included the following:

- holistic approaches to digital equity
- the emerging role of community anchor organizations in digital equity work
- the benefits and challenges of coalition-building to achieve meaningful change

After the panel discussions, participants separated into breakout rooms for small-group discussions about how to solve the problems that had been identified in the first summit. Participants were asked to respond to guiding prompts concerning potential solutions to the problems, and to build on each other's recommendations and ideas in a collaborative document.

During the two summits, information from the stakeholders and experts was collected by notetakers. After, REL-NEI and Region 2 Comprehensive Center staff organized the information and summarized it for this report.

Discussion Summary

The information, ideas, and perspectives gathered from stakeholders and experts in the Digital Equity Summits were summarized for this report and are intended to inform NYSED's action planning. The hope is that this information can point to opportunities for systems and policy change and that, in addition to informing NYSED's efforts, this information may be useful to any community's efforts to increase digital equity.

The Impact of Digital Inequity: Stakeholders' Perspectives

Social-emotional wellness has been negatively affected.

According to stakeholder participants, existing digital inequities are detrimental to the social-emotional wellness of community members who are unable to use digital tools to maintain relationships with their social circles, classmates, and coworkers. In addition, people without access to digital tools are unable to access online schooling, medical services, mental health services, and other support services. These conditions have led to significant disengagement from the community, social activities, and learning during COVID-19, resulting in more isolation.

"What happened when it came to the pandemic was, the future of work happened overnight. Essentially, as the lights turned off, people had to resort to going into their homes and working and learning from there, but we saw that there was a clear economic gap in terms of who could learn from home and work from home.... You can't have a strong recovery, let alone an equitable recovery, if you have this large of a portion of the population in our state or nationwide that remains disconnected from the workforce."
Jose Ortiz, Jr., Digital Equity Summit 2, March 2021

Participation in community, education, and civic activities is diminished.

Stakeholders noted that existing digital inequities have resulted in less participation in community meetings, less civic engagement, and decreased access to educational opportunities for both children and adults. People with a limited number of digital tools or devices (e.g., one iPad in the family) are forced to make choices about who participates in which activities.

Already existing inequities have been exacerbated due to uneven access to resources and services.

Stakeholders also conveyed that existing digital inequities have exacerbated the challenges that many individuals face. Individuals and communities who lack or have insufficient access to digital resources and supports are experiencing a greater loss of services and social opportunities. Historically underserved and disenfranchised individuals and communities, including those living in shelters, students living in foster care, immigrants, non-English language speakers, and individuals who are incarcerated, are provided diminished supports and services.

The Impact of Digital Inequity: Experts' Perspectives

There are disproportionate consequences for historically underserved and disenfranchised populations.

Expert panelists described how residents in rural areas, families with lower income, people for whom English is not the primary language, and families living in shelters are more likely to suffer the consequences of digital inequity. An example of detrimental impact includes decreased participation in community programs due to lack of access to broadband and/or a device. Panelists described instances in which families living in shelters who were unable to connect to remote learning were reported to the state hotline for education neglect, thus being punished for their lack of access and intensifying existing digital inequities. Students experiencing homelessness had the lowest levels of engagement in learning of all student groups in New York City. The panelists shared that thousands of youth took paperwork home for months because of lack of access to remote learning. Panelists also noted that culturally and socially enriching activities made available by New York libraries had participants from throughout the nation and world, while New Yorkers without internet access were unable to participate.

Workforce issues have been exacerbated by digital inequity.

Expert panelists pointed out that digital inequities have detrimental impacts on many in the workforce because only some workers are able to do their jobs from home. Others are excluded from entering the workforce since looking for jobs and communicating with employers have become increasingly dependent on digital access and tools, so those without access have difficulty finding work. Many participating in workforce development programs are cut out of learning and work opportunities due to lack of access to technology, and the majority of program participants are in low-income households.

The burden of addressing the problem of digital inequity has fallen largely on nonprofit organizations.

According to the expert panelists, many organizations have stretched their resources very thin in order to serve their community members. For example, public libraries have facilitated outreach to community members, increased spending on e-books, provided unlimited access to Wi-Fi, and raised funds for antennae, outdoor furniture, and reading spaces. Nonprofit organizations have raised funds for Chromebooks for students and underwritten the cost of internet access. The New York Boards of Cooperative Educational Services has spent human and fiscal resources on locating students and hand delivering assignments.

Root Causes of Digital Inequity: Stakeholders' Perspectives

Lack of communication interferes with efforts to address digital inequity.

Stakeholders described a lack of communication between and among various groups and stakeholders that has impeded the comprehensiveness and coordination of efforts to address digital inequity. They indicated that mistrust and ignorance exist because agencies and organizations are not adequately communicating with community members about how to access and use various technologies. Lack of coordination between and among federal, state, and local organizations, ISPs, school districts, and elected officials presents challenges to meeting people's needs. Even internet companies, which are integral to the issues, are not always brought into discussions about digital inclusion solutions.

Existing societal inequities broaden the digital equity gap.

According to the stakeholder participants, the digital divide reflects existing societal inequities, including those stemming from systemic racism, generational poverty, homelessness and housing insecurity, as well as differences in language, age, immigration status, criminal status, and others. Without internet access, appropriate devices, and technology skills, those already outside of the mainstream are left even further behind. Furthermore, great variance exists between school districts, meaning students who attend high-poverty schools are further behind than peers attending schools in wealthier districts, thus creating a deeper divide.

Funding issues prevent organizations from providing digital services.

Participants noted that funding is an issue at every level of government and in individual households. There is simply not enough money to allow each person to have the device(s) and internet access necessary to meet their needs. Families already struggling financially do not have the funds to support their needs for working from home and remote learning. School

districts and schools have been unable to fully meet the needs both before and during the pandemic because of a lack of funding.

Internet infrastructure and market structure are barriers to connectivity.

Stakeholders pointed out that the current internet infrastructure is unable to support the increased demand brought on by the COVID-19 crisis. They said that because the infrastructure is built and maintained by private companies, there is no incentive for companies to improve communication lines in hard-to-reach parts of the state. Internet access is still considered a commodity and not a necessity, thereby creating a barrier for some community members.

Knowledge gaps prevent some people from accessing supports.

Large knowledge gaps exist in the digital space, meaning some community members have more access than others, according to stakeholder participants in the summits. In general, they said there is a lack of resources available to increase the skills of all community members — particularly teachers and parents who are currently supporting students through remote learning.

Personal beliefs and fears cause some people to be reluctant about digital access.

Stakeholders said certain community members cannot or do not choose to enter the increasingly digital society because of personal beliefs and fears. Some religious groups are hesitant to introduce the internet into their schools and communities. Participants shared that people from immigrant groups may be afraid to enter personal information about themselves on internet sites. Others, especially those who may be vulnerable, are afraid of internet scams and so shy away from accessing online information and services.

Root Causes of Digital Inequity: Experts' Perspectives

Historic inequities have led to disproportionate access.

Describing the disproportionate access to digital resources, expert panelists traced that disproportionality back to a wealth gap that has existed since 1950 — historically, resources have gone to higher-income neighborhoods. This disproportionality continues today. Poverty and historical and structural racism are also at play; lack of or underinvestment in poor Black and brown communities such as the Bronx continues, resulting in many residents not having access to the internet at home. The housing authority in the Bronx did not have the ability to extend access to those communities during the COVID-19 pandemic.

The market structure of ISPs and the resulting connectivity issues also constitute a major root cause of digital inequity.

Expert panelists indicated that there is a monopoly on ISPs and often the only option available is too expensive for some communities in need of service. As a result, 2.5 million people lack home broadband in New York City, 1.5 million of whom also lack a home device. Because of regulations surrounding how and where to put antennas needed to expand connectivity, there is no financial incentive for service providers to expand to rural areas.

Inequitable access to digital learning opportunities is another root cause of digital inquity.

Digital literacy is varied across regions and populations of the state. More data are needed about who would benefit most from digital learning opportunities and about how to inform learning institutions (K–12 schools, libraries, institutions of higher education, community organizations) about communities' digital learning needs.

Strategies for Closing the Digital Equity Gap: Stakeholders' Perspectives

Create centralized services.

Stakeholder participants talked about the need for resources to be coordinated and centralized to make them easy to find and use. They suggested the development of a statewide directory by which community members could learn about how to access free hardware or get technical assistance. They described the usefulness of a clearinghouse to assist them in selecting vendors that meet all accessibility requirements. Additionally, they recommended a repository of tailored resources relating to digital skills for different occupations, thereby supporting individuals to advance their careers through specific job skill development.

A web directory for organizations currently working on digital equity issues could be an asset. It could allow space to highlight different organizations and their different models and practices, and it could allow people across the state to share materials and resources. Organizations also might use it to recognize and connect with others to create effective partnerships.

Collaborate with existing organizations.

Participants discussed the need to collaborate with existing organizations to improve digital equity for all, particularly because they were unaware of any guidance on how to create partnership models. Collaboratively designing a solution with a common goal of ensuring access for all to the digital space could reduce redundant efforts and promote greater efficiencies. Coalitions to conduct community workshops led by member organizations throughout local,

regional, and statewide communities could be an effective way to meet the digital access needs of all New York State residents.

To encourage and incentivize greater collaboration, participants suggested that financial incentives be given to large for-profit companies to partner with smaller, community-based organizations that may lack the resources to work collaboratively. Resource-rich companies, vendors, and providers involved in collaborative partnerships might make donations or fund the expansion of infrastructure. Collaborations could lead to the creation of corporate philanthropy based on current and future workforce needs for digital access. It might be possible for a statewide network of funders to support a voucher system to help low-income residents pay for digital connectivity. Additionally, a website listing all the funding opportunities throughout the state, with clear instructions for applying, would make these funds more accessible.

Participants also recommended that digital resources, including digital literacy training, internet access, and computers, should be among the services provided by existing community organizations such as senior centers, food banks, shelters, and public housing. Schools might meet the needs of the wider community by housing PreK — adult learning centers that provide digital literacy education. Public libraries might also serve as community hubs to enhance digital literacy, by hosting training sessions and by loaning devices to community members. A participant mentioned the YWCA's Child Watch and suggested that the program might be able to successfully incorporate digital resources into its program. It was suggested that some businesses, such as the Buffalo Bills or Spectrum, might be willing to help defray the cost of internet access for people who need financial support.

Many participants noted that the summits should be continued, as they allowed for conversations, information-sharing, and collaboration across various sectors committed to achieving greater digital equity. In order to increase communication, reduce duplication of efforts and redundancy, and promote greater efficiencies, participants described the need for all stakeholders to be present, including educators, librarians, parents, seniors, government agencies, social services providers, and community organizations at the local, regional, and state levels. Finally, participants suggested working with major statewide associations which represent the education community, such as the New York State School Boards Association, which can assist its member school boards to reach out to their communities.

Reach out to unconnected populations.

Ensuring that all voices are heard is challenging because those who are not digitally engaged currently are unable to access opportunities to be a part of the solution. In discussing change ideas, participants described the need to be culturally responsive and to develop trust, which they described as a process that will take time and intentionality. At the beginning of any outreach process, it is important to establish clear, measurable goals and accountability expectations, as well as take the time to listen to community members about existing issues and constraints. Those implementing initiatives should be required to report back to the

community on progress and to gather community feedback. Participants suggested making personal contact with community groups through social centers and community businesses to ensure that those who are currently "unplugged" are not left out of the discussions.

Participants suggested that supports might include offering transportation, childcare, meals, and stipends, as well as ensuring that all materials are accessible in various languages and to those with vision and/or hearing difficulty. They also discussed the need to make concrete, actionable plans to build better systems of accountability, with clearly defined goals and deliverables and avenues for frequent feedback and check-ins. It was suggested that these feedback loops include methods to include everyone, regardless of current digital status, including through both written and verbal methods, such as email, text, and phone surveys.

Development of community-based leaders was seen as paramount to promoting and actualizing greater digital equity for all New Yorkers. It is useful to identify the credible messengers and key leaders in each community, and to help those leaders develop their knowledge and skills around issues related to digital equity. Working to provide the supports needed for community members to become leaders and to chair committees could be a way to achieve New York's digital equity goals. Recognizing and helping members of the community become leaders through effective power-sharing could increase trust and participation by those currently unconnected and underserved. Additionally, these community-based leaders would be better able to access the diverse perspectives of various stakeholders, bringing ever more opinions, thoughts, and concerns to the table.

Develop new policies.

Participants saw the need for new policies at the state and national levels to ensure that everyone has equitable access to the internet. They discussed the importance of timely legislative actions that reflect both current and future needs and challenges. One suggestion was for NYSED to develop legislation for an "Electronic Inclusion for Technology" policy that would require all districts to report their digital inclusion rates to NYSED. There were also calls to build funding for digital equity grants, awarded in size-based categories, into the NYSED budget. It was noted that at the national level, there is a need for actionable policies and funding that enable sustained equitable access through supporting partnerships and collaboration at the public school level.

Participants across several breakout rooms described the need for public policies that consider internet access a utility like other public utilities, and that prioritize and regulate digital access in the same way that access to water and electricity are prioritized. Organizations could create policies and messaging to emphasize the need for digital equity and to promote action to achieve it by pressuring internet companies to invest in providing better service for all New Yorkers. One participant suggested that policies should allow each community to address their local needs. A specific recommendation was made to create a policy that would automatically qualify every household that has a child and receives Medicaid to receive free access to the

internet and a computer as part of their health and education resources. Another way digital access could be supported by federal and state governments is by requiring that certain important activities be completed online, such as voting or health visits. Such requirements would in turn require the government or other agencies to ensure digital access.

Train and support community members.

Many participants discussed ideas about how to train and support all community members so that they have the skills needed to use digital resources. Such ideas are complicated by the challenge of making training accessible and convenient. A participant mentioned that more information and awareness are needed about how foundational digital skills connect to employment and educational attainment, if digital training is to become a priority.

Suggestions included requiring schools to provide workshops for adults; having students, teachers, and parents enroll together in training; and putting students in leadership positions to teach technology skills to community members, potentially during the regular school day. One participant described an effort made by a school district which opened its helpdesk to families and students. Although the helpdesk did not have the capacity to fully support the need, their ticketing system collected a lot of data about the types of supports that are needed.

Another suggestion was to create a community Tech Support Corps, like the Peace Corps, to provide training and technical assistance to the community. The Corps would recruit diverse young people to become trainers and capacity builders and develop foundational technical skills. The idea is that these young people would go into communities to staff Mobile Digital Training Centers, much like bookmobiles. Other suggestions included having a 24-hour helpline and community learning pods.

School curriculum and teaching practices could be updated to include developmentally appropriate, cross-curricular digital literacy standards, including standards dealing with media literacy. An important step to developing this curriculum would be an assessment of the key skills needed for today's job market. Appropriate curriculum development was noted as particularly important statewide for community colleges and workforce development centers.

Participants suggested that curricula should also be developed for people outside of the K–12 system, including caregivers of young children and seniors. Such curricula should be tailored to their specific needs, such as privacy and data protection, or how to use FaceTime. These learning opportunities could be provided at adult learning centers, libraries, community centers, places of worship, and online. Participants described the difficulties that people who do not speak English may have in making use of digital resources and suggested that translation and interpretation services should be provided as much as possible.

Provide access to hardware.

Stakeholders noted that community members are still in need of appropriate devices to access digital resources effectively. For example, some households only have mobile devices, which creates limitations. Some people need microphone headsets so they can engage in online discussions despite background noise. There is a need for long-term, permanent solutions, not focusing solely on short-term solutions such as device loans. It is also important that hardware be kept current with software updates.

Participants saw an opportunity to engage with corporations and governments to increase access to hardware through tax incentives for companies that donate surplus and refurbished hardware. Doing so might be particularly helpful in rural areas where access to hardware and corporate partnerships is sparse. It was noted that this refurbishment campaign could employ young people as they enter the workforce. One participant suggested a dedicated tax for tech purposes, like a gas tax earmarked specifically for road maintenance. Additionally, "sell one, give one" models were suggested, whereby tech companies would agree to give one device to a community member for every device sold. It was also suggested that every incoming kindergarten or pre-K student be given a device to use for school.

Participants noted that to keep devices up to date, community members need accessible and flexible support, including support through community hubs like churches and social service centers. Young people, through programs like AmeriCorps, could be utilized for this purpose, helping with updates and enabling community members of different generations to interact and share expertise. It was suggested that community members could be encouraged to check for software updates in tandem with other regular updates, such as a driver's license or library membership renewal.

Make internet more accessible.

Participants also suggested that community members should be able to select from multiple providers to acquire dependable, affordable internet access. Ideas for addressing this issue included creating and distributing portable network kits, developing a mobile hotspot lending program, and improving infrastructure statewide. Participants discussed ways to empower community ownership of broadband and effective communication about options. Any new, innovative, and untested models for internet delivery could be piloted on a small scale first, perhaps on college campuses, using research funds. These models could be reviewed by, among others, high school and college students who are often immersed in digital activities. Additionally, these models should qualify for subsidies.

There was some discussion of the need to reimagine the way that public buildings and public spaces are utilized. Such reimagining could be a way to leverage existing community assets to build out "last mile" Wi-Fi networks. Municipalities might offer free Wi-Fi in every public park. Each public building could reconfigure one room for free public access to the internet. New

residential construction, regardless of income or location, could be required to allocate space for this service. Building or business owners could receive tax incentives for developing and maintaining these public spaces.

It was agreed that the broadband decision process in each community should be inclusive and transparent and that using schools, libraries, and media (including mail, radio, and TV broadcast for those without internet access) to get the word out about opportunities to participate would be key. Information about the broadband decision process could be provided in several languages and could be available through community service organizations and local events. To ensure broad participation in public hearings, conducting targeted, in-person outreach to underserved communities may be necessary. It was mentioned that for any proposal, there should be an offline opportunity for response, such as through drop boxes or meetings at libraries and schools.

Participants discussed the need for creative economic solutions, such as offering tax incentives to broadband providers to encourage them to broaden and improve their services. There are already some funding programs through the Federal Communications Commission to support broadband for the home, and one idea is to make those discounts available through bulk school or library subscriptions.

Conduct additional studies to clarify needs.

Participants acknowledged the need for data to inform policies and decision-making. One suggestion was to create a map of internet access and quality of access across the state. Another was to implement a collective impact study to provide details about the current situation and identify the areas with highest needs. One participant suggested surveying families directly through paper or door-to-door efforts to fully assess the needs of community members. It was noted that there might be individuals whose digital needs are not met by community centers, medical providers, and senior centers, but who could be surveyed and studied to understand how to best include them in digital equity efforts. One participant suggested that the entities that own the broadband infrastructure could supply data that could be rigorously tracked and used to inform policies and decision-making.

Strategies for Closing the Digital Equity Gap: Experts' Perspectives

Treat internet access as a utility.

Consistent with a suggestion raised by stakeholders, one theme that arose during the expert panelist discussions was the notion that the internet has become a utility and should no longer be considered a luxury. Cost and market issues need to be addressed, such as reducing costs and creating access to the internet and to devices and learning opportunities for knowledge and skill-building for everyone. Providing open-reception spaces where people can connect to guest Wi-Fi would encourage community wireless networks so benefits and costs could be shared. If communities organize to tell ISPs what they want and need, it could result in new internet providers owned and operated by the community. Current systems that are not serving communities need to be disrupted in order to build a coalition to create a community internet trust (like a community land trust).

"We adopted digital access as a basic need on top of the other four basic needs [food, housing, childcare, and transportation], so we are considering it to be a basic need for the community… like water or electricity." Monique Detroit Tate, Digital Equity Summit 2, March 2021

Creatively address costs and funding for digital resources.

Expert panelists also described other creative ideas for addressing costs and funding. There are ISPs that are willing to donate fiber or internet, and there are community foundations that will issue microgrants to help with planning. One librarian is working to train other librarians to help people with the whole digital inclusion process. This approach is called the Digital Navigator Model, and more information is available at https://www.digitalinclusion.org/digital-navigator-model/. In rural areas, electrification loans are needed to bring the necessary electrical power and to reduce the cost of bringing power to rural and remote areas. Stakeholders working together could lobby Congress to appropriate money for schools and libraries.

Build on community organization and collaboration.

Expert panelists emphasized that community organizing and collaboration are key to moving toward social and economic equity and ultimately eliminating digital inequity. Communities need to come together in service of a common agenda and to determine common success criteria for measuring progress around workforce training, digital literacy, and changing the market structure for digital resources and services. Community hubs can serve as formal and informal gathering spaces. Farms, social justice groups, places of faith, and artists' communities were all mentioned as some of the best places to tap into community interest and action. Panelists also suggested identifying a respected convener, such as a "backbone organization,"

to be removed from programmatic work and instead be charged with leading a coalition for the good of the entire group.

Conclusion

The work to achieve digital equity will require teams from many sectors — the arts, media, housing, education, and community members at large. Panelists stressed the importance of involving young people who are the stewards of technology and innovation. They also emphasized the need to ensure that leadership of any initiative reflects the diversity of the community and that policies and systems should reflect the communities they serve.

New York's Digital Divide:
Examining adoption of internet and computers for the state and its library districts

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DRAFT

Summary

The COVID-19 pandemic has vividly demonstrated the disadvantages of lacking home internet service. One in 4 households in New York State do not have a foundational tool for internet connectivity – a wireline high-speed internet subscription for their home. These gaps are more pronounced for low-income New Yorkers, older adults, and communities of color.

Closing these gaps will require an "all hands" approach and public libraries are well positioned to be a team leader. Public libraries have always played a role in addressing the digital needs of those with limited means of digital connectivity. They are also highly trusted institutions in the eyes of the public. This positions libraries to play a prominent part in addressing the digital divide, which will persist even as the COVID crisis fades. The following data shines a light on access to digital tools in New York State using 2019 American Community Survey data. Key datapoints are as follows.

Two million New York households **do not** subscribe to high-speed wireline internet service at home and some 1.6 million households **do not** have a computer.

- Nearly 27% of New York households do not subscribe to wireline broadband service at home.
- Some 22% of New York households do not have a desktop or laptop computer at home.

Poor New Yorkers, older adults, and communities of color have low adoption rates of digital tools.

- Half of New York's lowest income residents (those whose annual incomes are $25,000 or less) do not have a wireline broadband subscription and half lack a computer.
- 40% of older (age 65 and above) New Yorkers do not have wireline subscriptions for internet service and about one-third do not have a computer.
- One-third of African American and Latino households do not have wireline broadband at home and similar numbers do not have a desktop or laptop computer.

Rural New York households are less likely than metropolitan dwellers to have wireline service, but low-income rural New Yorkers struggle affording service in the same way as their counterparts in metropolitan areas.

- 31% of households in non-metropolitan areas do not have wireline broadband compared with 26% of households in metro areas do not subscribe to wireline service.
- Low-income households in both areas are much less likely to have wireline service, with half of such households in metro and non-metro areas lacking service.

There is significant variation in the adoption of digital tools across the state's 23 library systems.

- Lower-income rural areas (e.g., in the western part of the state), as well as some urban library locations (e.g., the Bronx), have home wireline adoption rates that are 20 percentage points lower than wealthier counterparts.
- Some library systems with low population density and (on average) healthy household incomes have broadband adoption rates above the state average.

The report also makes recommendations for closing the digital divide, including funding partnerships for digital inclusion, promoting awareness of discount internet offerings, strengthening the state's role in digital inclusion, and helping enhance users' digital skills in using the internet and computers. Libraries are not the only institution that will be part of the solution, but they are uniquely situated to anchor it. To that end, libraries will require additional funding for digital inclusion programs and to upgrade the network speeds for library facilities to meet growing demand.

I. Libraries are digital lifelines for low-income households

When institutions throughout society shut down in the face of the pandemic, the closure of public libraries opened up a hole in many places. As hubs for socialization, collaboration, and digital connectivity, libraries are truly community anchors. Prior to library buildings being closed, many branches would host thousands of people per day for programs, computer access, or just sitting and reading newspapers. It was not uncommon for libraries in low-income areas to have 100% computer usage throughout the day and for more affluent ones to have people bringing their own devices for free Wi-Fi.

With the pandemic, the importance of libraries as community anchors has grown. Many boosted the strength of the Wi-Fi signal so people could get online outdoors. Users – many for the first time – had to rely on digital collections, which was not possible for those without online access at home.

When libraries fully reopen as the pandemic fades, their role as digital lifelines to lower-income Americans will continue. Libraries have long been part of the "workaround ecosystem" for low-income people as they patch together internet access in the absence of connections at home. Research shows that, for new at-home subscribers, libraries were the place to which many turned for access before subscribing to service. Once they obtained service, new at-home users often turned to the library for digital skills training.

The persistence of the digital divide will sustain public libraries' role as an online resource for low-income Americans. A recent survey shows that some 15% of Americans lost their main source of internet connectivity during the pandemic. Other data underscore the stubbornness of the digital divide. Analysis of Census Pulse surveys, fielded at the pandemic's outset, shows little change in internet and computer availability for students from April 2020 through November 2020. The same is true for New York State. Census finds that 73.1% of students always had the internet available to them in the early days of the pandemic (April 2020), a figure that changed modestly (74.1%) in its March 2021 survey.

These aggregate numbers do not necessarily mean that recent efforts to improve computer and internet access for schoolchildren have been for naught. They could reflect society treading water in the face of a pandemic, with many households losing access and many gaining through programs to address the "homework gap." The data do, however, suggest that the digital divide will be with us after a sense of normalcy returns in society. Libraries will resume – and undoubtedly expand – their roles as digital hubs in their communities.

II. Metrics of the digital divide

In the state of New York, digital access varies greatly across geography and socio-economic groups. This report uses 2019 American Community Survey (ACS) data to characterize the state of digital inclusion in New York. It is important to emphasize that the report examines broadband and computer adoption, that is, whether people subscribe to service at home or have a working computer. The report does not

examine broadband access, that is, whether a household has a high-speed network deployed to the premises.

The report focuses on four metrics:

- **Broadband of any type**: This refers to whether a person subscribes to any service that provides high-speed internet connectivity. For the most part, this means whether people have a wireline subscription at home, such as cable, fiber, or digital subscriber line service. But it also includes cellular data plans (e.g., those on smartphones or mobile hotspots) as well as satellite service.
- **Wireline broadband**: This is a subset of "broadband of any type" and relies on an ACS survey question that asks whether people subscribe to cable modem, fiber optic, or digital subscriber line service. The difference between adoption rates for "broadband of any type" and wireline service is, for the most part, attributable to those who rely only on wireless data plans (primarily using smartphones) for internet access.
- **Desktop or laptop computers**: The ACS captures whether a household has either kind of device – and these devices are obviously useful for creating and sharing digital content.
- **Tablet computers**: The ACS also asks whether households have such devices, which (though typically less powerful computing devices than desktop or laptop computers) are nonetheless used in many educational settings.

One of the four metrics above has a privileged place in policy discussions – wireline home high-speed subscriptions. That is because it has both the speed and monthly data allotments that allow people to use the internet with little or no constraint for work, learning, or telehealth. Wireless data plans are undoubtedly useful online tools, but as sole means for home internet access, research has shown that they limit students in doing homework and other schoolwork. Monthly data limits usually are not enough to support work-at-home or telehealth applications.

III. Low-income households, older adults, and communities of color lag in digital adoption

a. New York State's broadband and computer adoption rates are in line with national figures

Some 13.8% of New York households do not have "broadband of any type," a rate comparable for the figure for the entire United States – 13.4%. For computers, 22.2% lack a desktop or laptop computer and 38.4% do not have a tablet, essentially matching national figures of 22.73% and 38.5% respectively. The state's figure for those without wireline broadband is 26.7% is somewhat better than that for the entire United States (29.2%).

These figures mean that nearly 2 million New York households do not have a wireline broadband subscription at home and 1.6 million do not have a desktop or laptop computer at home.

b. Low-income New Yorkers have the lowest rates of broadband and computer adoption

Half (50.3%) of New York households whose annual incomes are $25,000 or less lack wireline broadband subscriptions at home and one-third (34.5%) do not have broadband of any type. For computers, half are without a desktop or laptop computer and about two-thirds (34.9%) lack a tablet. The table below lays out digital access by income, showing how stark the differences are when comparing low-income to middle- and upper-income New York households.

Table 1: Low-income households: Those without digital access tools

	ALL	Less than $25K	Between $25K and $50K	Between $50K and $75K	Between $75K and $150K	Greater than $150K
Broadband of any type	13.8%	34.5%	18.6%	10.8%	5.7%	3.1%
Wireline broadband	26.7%	50.3%	35.3%	24.8%	17.3%	10.5%
Desktop or laptop computer	22.2%	50.0%	32.1%	19.8%	10.7%	4.6%
Tablet computer	38.4%	65.1%	50.7%	37.8%	28.2%	16.3%
Number of households	7,446,217	1,435,955	1,331,372	1,115,898	2,051,498	1,511,494

Income has an obvious relationship with wireline broadband adoption and a strong majority of households without service are those whose incomes fall below the state's median. Some 74% of all New York households without a home wireline broadband subscription have incomes below the state's median income figure, which is approximately $72,000.

c. Older adults in New York trail younger counterparts in the adoption of digital tools.

Some two in five (39.2%) of New York residents age 65 and older do not have wireline broadband subscriptions at home, significantly higher than the rate for all other adults in the state. The gaps are similar for broadband of any type and computers.

Table 2: Older adults: Those without digital access tools

	Age 18-64	65+
Broadband of any type	8.8%	26.6%
Wireline broadband	21.8%	39.2%
Desktop or laptop computer	17.3%	35.0%
Tablet computer	32.3%	45.9%
Number of households	5,382,983	2,062,572
People	12,140,097	3,295,799

d. African Americans, Latinos, and Native Americans have lower adoption rates for digital tools

Roughly one-third of African Americans, Latinos, and Native Americans are without wireline broadband at home compared with one quarter for whites and Asian Americans. The gaps are narrower when looking at "broadband of any type." This is because Latinos and African Americans are more likely than whites to rely on wireless data plans *only* for internet service.

Table 3: Race and ethnicity: Those without digital access tools

	Asian Americans	Whites	Latinos	Blacks	Native Americans

Broadband of any type	9.4%	12.9%	16.0%	17.8%	20.1%
Wireline broadband	22.3%	24.3%	32.2%	34.1%	35.1%
Desktop or laptop computer	15.9%	19.6%	31.7%	30.4%	30.3%
Tablet computer	33.5%	36.9%	43.5%	43.0%	44.4%
Number of households	608,461	5,175,162	1,174,170	1,213,582	74,171

e. Households in rural New York State are less likely to subscribe to wireline broadband

A well-known dimension of the digital divide is less availability of high-speed networks in remote rural areas. According to the Federal Communications Commission, (FCC) just 1.2% of all New Yorkers do not have networks available to them at broadband speed of at least 25 megabits per second (download), although that figure is higher (7.6%) in rural areas. Although FCC data may understate the problem of insufficient network deployment by a factor of two, all measures of network deployment show rural areas lagging.

These differences manifest themselves in lower wireline subscription rates in those areas. For New York, 30.6% of households in non-metropolitan areas do not subscribe to broadband compared with 25.9% for metropolitan areas. Note that the Census Bureau does not use the term “rural” in characterizing geographies, but rather uses “metro” and “non-metro” to describe geographies. Following the Census Bureau’s practice, the data in the table below defines metro areas as urbanized areas of 50,000 or more people and urban clusters of at least 2,500 people but less than 50,000; remaining areas are non-metro.

Table 4: Metro versus non-metro : Those without digital access tools

	Non-Metro Households	Metro Households
Broadband of any type	16.0%	13.4%
Wireline broadband	30.6%	25.9%
Desktop or laptop computer	24.9%	21.7%
Tablet computer	40.9%	37.9%
Number of households	1,167,780	6,278,437

The patterns for adoption – especially for wireline broadband service – are similar across income levels for metro and non-metro households. Of particular interest is adoption levels at lower income levels, which differ very little. This underscores how affordability of service powerfully influences adoption decisions, even in rural parts of the state.

Table 5: Metro, non-metro, and income: Those without digital access tools

Metro Households	Less than $25K	Between $25K and $50K	Between $50K and $75K	Between $75K and $150K	Greater than $150K
Broadband of any type	34.0%	18.1%	10.2%	5.5%	3.1%

Wireline broadband	50.0%	34.8%	24.0%	16.4%	10.4%
Desktop or laptop computer	49.8%	31.6%	19.5%	10.2%	4.6%
Tablet computer	64.6%	50.1%	37.1%	28.4%	16.2%
Number of households	1,197,411	1,107,436	927,529	1,721,530	1,323,978

Non-Metro Households	Less than $25K	Between $25K and $50K	Between $50K and $75K	Between $75K and $150K	Greater than $150K
Broadband of any type	36.9%	20.7%	13.7%	6.5%	2.8%
Wireline broadband	51.6%	37.9%	28.9%	22.3%	11.5%
Desktop or laptop computer	50.8%	34.4%	21.2%	13.1%	5.1%
Tablet computer	67.4%	53.3%	41.6%	26.9%	16.4%
Number of households	238,534	223,846	188,469	329,668	187,816

f. More than 400,000 households with children under 18 lack wireline broadband

The table below shows that 19.9% of households with children under the age of 18 lack wireline broadband subscriptions in their homes. Just 6.8% do not have "broadband of any type," suggesting that about 13% of households with children rely on wireless data plans for online access. With approximately 4 million children living in New York State, this translates into at least 800,000 children living in households without sufficient internet access for logging onto class at home.

Table 6: The "Homework" gap: Those without digital access tools

	Households with children 17 or younger	Households without children
Broadband of any type	6.8%	16.5%
Wireline broadband	19.9%	29.3%
Desktop or laptop computer	15.4%	24.9%
Tablet computer	23.1%	44.3%
Number of households	2,081,191	5,365,026

Adoption rates – whether for wireline broadband or computers – are higher for households with children than the rest of the population. That is likely because households with school-age children are generally a

younger demographic and perhaps many low-income households with children may nonetheless find a way to subscribe to broadband or purchase hardware given the importance of these tools in education.

IV. Adoption patterns across New York State Library Systems

The nature of the demands that libraries face likely vary depending on the nature of the places they serve. New York State has 23 library systems to serve the state's diverse regions. Below shows broadband and computer adoption rates in the state's library districts ranked from districts with the smallest incidence of non-adoption for "broadband of any type" to the highest.

Table 7: Library systems in New York State: Households without digital access tools

	Broadband of any type	Broadband such as cable, fiber optic or DSL	Desktop or laptop	Tablet or other portable wireless computer	Households
Suffolk	7.3%	15.4%	12.6%	30.3%	499,744
Nassau	10.0%	19.6%	14.4%	30.5%	450,798
Southern Adirondack	11.2%	23.5%	18.6%	36.7%	148,311
Westchester County	11.7%	22.2%	17.2%	32.5%	356,200
Mid-Hudson	11.9%	23.9%	18.7%	39.3%	179,844
Ramapo Catskill	12.9%	22.3%	20.9%	38.0%	331,181
Upper Hudson	13.3%	24.5%	19.9%	39.4%	194,174
Buffalo-Erie	13.8%	28.1%	24.9%	40.2%	398,326
Queens County	13.9%	30.5%	23.2%	41.2%	784,552
Monroe	13.9%	26.0%	23.4%	37.3%	305,284
Pioneer	14.5%	29.2%	22.9%	36.6%	121,985
New York Public Library	14.7%	28.7%	25.4%	41.9%	1,448,390
Nioga	15.6%	29.8%	26.5%	40.5%	130,947
Kings County (Brooklyn)	15.9%	27.4%	23.3%	37.6%	978,791
Mid York	16.4%	31.3%	24.7%	41.2%	140,783
Finger Lakes	16.4%	30.6%	20.3%	39.5%	130,371
Onondaga	16.5%	28.2%	24.4%	40.5%	183,218
Four County	16.6%	28.2%	25.4%	41.5%	165,614
North Country	18.4%	34.5%	27.6%	42.8%	117,802
Southern Tier	18.7%	36.5%	25.7%	46.6%	106,964
Mohawk Valley	20.1%	30.5%	27.8%	42.4%	117,310
Clinton-Essex-Franklin	20.6%	34.2%	25.2%	44.1%	66,227
Chautauqua-Cattaraugus	22.0%	40.6%	32.8%	44.1%	88,401
ALL	14.0%	26.7%	22.3%	38.6%	7,446,217

Several things are striking about the numbers. First is the range of adoption rates across the state's library districts. For wireline subscriptions at home, only 2 in 10 households in wealthy areas such as Suffolk and Nassau Counties do not have a wireline subscription in their homes, while 4 in 10 in Chautauqua and Cattaraugus Counties lack home wireline broadband. The adoption rate is similar in the Bronx. Second, it is evident in this table how economic factors figure into broadband adoption regardless of geography. The median household income for Chautauqua and Cattaraugus Counties is about $50,000 annually and $41,000 in Bronx County – both well below the $72,000 figure for the entire state. Both places have low broadband adoption rates, although one is urban and the other much less densely populated. There are also places, such as Putnam and Dutchess Counties in the Mid-Hudson district that have low population density (certainly relative to the high-adoption Long Island counties) along with healthy household incomes (e.g., a median income of $86,000 annually in Dutchess County. They have above-average wireline broadband adoption rates.

Table 8: New York City and New York Public Library System: Households without digital access tools

Given the size of the New York Public Library (NYPL) system, it is worth disaggregating the areas it serves. The first three rows represent areas NYPL serves; with the exception of Manhattan, the NYPL serves citizens whose adoption rates of digital tools are below statewide figures.

	Broadband of any type	Broadband such as cable, fiber optic or DSL	Desktop or laptop	Tablet or other portable wireless computer	Households
New York County (Manhattan)	11.7%	22.1%	18.0%	38.3%	769,303
Richmond (Staten Island)	16.9%	28.3%	20.3%	33.7%	166,297
Bronx County	18.7%	38.7%	38.2%	50.0%	513,890
Queens County	13.9%	30.5%	23.2%	41.2%	784,552
Kings County (Brooklyn)	15.9%	27.4%	23.3%	37.6%	978,791
All New York City	14.9%	28.7%	24.2%	40.4%	3,211,033

The final two rows show findings for Brooklyn and Queens. For the entire city, a higher share of New York City residents lacks broadband of any type than other residents of New York State (by a 14.9% to 13.3% margin) and more do not have wireline home high-speed subscription (28.7% of city residents lack wireline subscriptions compared with 25.1% for other state residents).

V. Recommendations

Addressing adoption gaps will require action at the state and local levels of government in New York. The pandemic has already sparked action in the state, such as Governor Cuomo's call for internet service providers to have a $15 per month internet offer tailored to low-income New Yorkers who may struggle to afford service. But sustainable progress will require ongoing action.

Partnerships for digital inclusion: New York State should consider investments in digital inclusion, perhaps in partnership with philanthropic organizations. There are a number of digital inclusion coalitions throughout the state that can serve as the groundwork for these investments. Some activities that these

coalitions may contemplate – such as creating “digital navigators” to offer one-on-one tech support to people in need – require funding. Public libraries – already highly trusted by the public – are well-positioned to put investments in digital inclusion to good use.

These investments will have to extend beyond libraries to other community institutions; with additional support, digital inclusion coalitions can help identify such entities. Funding for digital inclusion should also promote participation among citizens who have traditionally been on the wrong side of the digital divide in the design of inclusion programs.

Increasing public awareness of affordability programs: The federal government’s Emergency Broadband Benefits offers qualifying households a $50 per month subsidy on their internet service bill. However, the federal government did not appropriate funds for outreach to potential beneficiaries or support in helping them sign up for the benefit. Given that – and New York’s intent to require carriers to offer discounted internet service – investing the funds for outreach would likely have payoffs in getting more people online. Libraries can play a constructive role in outreach due to the public’s trust in public libraries.

Improving the pipeline of computing devices: Affordability of computers is commonly cited as a reason people do not subscribe to home wireline service and initiatives exist to help get computers to low-income households. Stakeholders should explore ways to expand them to all parts of the state to meet demands that the pandemic has spurred. Libraries are already, in many places, community computing centers for citizens and can help new computer users increase their confidence in using digital devices.

Developing and maintaining strong state leadership for digital inclusion: The renewed focus at the federal level on the digital divide puts states squarely in the middle of initiatives to address digital equity. The state can take on a coordinating role in mapping the location of digital inclusion resources (e.g., skills training, places to find free or discount computers) and publicizing programs such as the EBB. In some states, the creation of a state-level Office of Digital Inclusion has served as a marker for government’s commitment to use public resources and coordinate with private-sector initiatives to close the digital divide.

Ensuring libraries have the resources to meet the digital needs of their communities: Libraries will play a cross-cutting role in helping to close the digital divide. As trusted community anchors, they can reach those who qualify for the federal EBB program, provide digital skills training, and raise awareness of other programs to help citizens use the internet to educate themselves, access government services, learn new job skills, and more. This will require investment in libraries’ digital capacities – including upgrading network speeds for library facilities.

Appendix

a. Methodology

The data used for this report come from the 2019 American Community Survey (ACS). This survey, conducted by the U.S. Census Bureau, contacts 3.5 million households per year. Households receive notices through the mail that they have been selected for the survey, and they can respond through the mail, using the internet, or by telephone. If contacted households do not respond, ACS follows up with phone calls to ask that the survey be completed. Some 90% of contacted households complete the ACS.

The large sample size of ACS allows analysis of fairly disaggregated geographic units, and, since the ACS is an ongoing survey, the Census Bureau aggregates the data in different ways. For analysis of census tracts (generally having populations of about 4,000 people though census tracts can be geographically large in rural areas), ACS aggregates data over five years, meaning some 17.5 million households are available for analysis. For larger geographic areas, such as states and many counties, the "1-year ACS estimates" are appropriate, as that survey can be used to analyze places with populations of 65,000 or more. For places whose populations are below 60,000, it is appropriate to use ACS 5-year estimates.

In this report, unless otherwise noted, results are based on ACS 1-year estimates.

To characterize "wireline broadband service" at home, the report uses an ACS question that asks whether a household subscribes to internet service such as cable, fiber, or digital subscriber line (DSL). It is worth pointing out that an affirmative answer to having wireline broadband at home does not reflect the speed of the underlying service. DSL service usually falls short of the Federal Communications Commission's (FCC) 25 Mbps threshold for broadband. As such, DSL is a basic internet service that may present difficulties when more than one person would like to engage in educational applications that, for instance, require streaming video. But the ACS data does not tell us which households have DSL compared to, say, cable modem service.

The report also has a measure called "broadband of any type." This includes a household with a subscription to any broadband service, i.e., one whose speed exceeds the 25 Megabit per second (Mbps) definition. This could encompass smartphones, wireline technologies (e.g., cable or fiber), hotspots, and satellite service. Households answer "yes" if they subscribe to any of these online access technologies. A "yes" answer is not conditioned on a speed test, that is, a tool to determine whether their home access exceeds the 25 Mbps threshold or not. Smartphone access is classified as broadband as its speeds on 4G wireless networks usually meet the 25 Mbps threshold. That is why the incidence for "broadband of any type" is greater than home wireline adoption, since "broadband of any type" includes smartphones.

For computer access, the ACS asks whether a household has a working laptop or desktop computer, and (in a separate question) whether the household has a tablet computer.

b. Percentage of households without digital tools by county

County	Broadband of any type	Broadband such as cable, fiber optic or DSL	Desktop or laptop	Tablet or other portable wireless computer	Number of households
Albany	13.4%	24.6%	19.5%	40.0%	128,284
Allegany	24.9%	47.7%	27.3%	47.8%	17,948
Bronx County	18.7%	38.7%	38.2%	50.0%	513,890
Broome	15.8%	26.9%	25.6%	39.9%	79,309
Cattaraugus	25.1%	49.0%	35.8%	46.6%	33,056
Cayuga	15.3%	34.0%	27.2%	36.3%	31,489

Chautauqua	20.1%	35.6%	30.9%	42.6%	55,345
Chemung	16.8%	31.6%	23.7%	41.3%	33,490
Chenango	21.9%	34.2%	26.6%	49.1%	20,697
Clinton	16.6%	30.0%	23.0%	40.2%	31,422
Cortland	26.2%	37.9%	22.3%	45.7%	24,966
Columbia	20.3%	35.2%	21.5%	41.1%	17,745
Delaware	24.0%	36.2%	25.6%	54.0%	18,968
Dutchess	9.2%	21.2%	18.4%	39.1%	110,529
Erie County	13.8%	28.1%	24.9%	40.2%	398,326
Essex	21.9%	33.2%	22.0%	44.3%	15,790
Franklin	26.1%	41.8%	31.6%	50.6%	19,015
Fulton	23.0%	32.1%	35.1%	42.7%	22,557
Genesee	19.4%	31.7%	24.4%	42.7%	23,759
Greene	26.5%	44.8%	26.7%	51.9%	17,100
Hamilton	24.8%	33.1%	33.9%	44.2%	1,157
Herkimer	20.1%	36.3%	24.8%	47.7%	24,524
Jefferson	14.6%	30.4%	24.9%	40.1%	41,214
Kings	15.8%	27.3%	23.3%	37.5%	978,091
Lewis County	21.6%	37.9%	24.9%	46.0%	10,247
Livingston	13.6%	29.1%	22.3%	39.1%	23,409
Madison	17.5%	31.9%	17.8%	30.9%	25,986
Monroe	13.9%	26.0%	23.4%	37.3%	305,284
Montgomery	24.0%	36.0%	31.0%	48.3%	19,660
Nassau	9.8%	19.4%	14.2%	30.4%	449,798
New York	11.6%	22.0%	17.9%	38.2%	768,203
Niagara	13.9%	28.9%	27.2%	38.7%	90,625
Oneida	15.0%	29.7%	26.6%	42.4%	90,273
Onondaga	16.5%	28.2%	24.4%	40.5%	183,218
Ontario	11.7%	23.9%	18.8%	29.7%	46,025
Orange	12.2%	21.4%	21.3%	35.1%	131,421
Orleans	19.3%	32.5%	25.6%	47.4%	16,563
Oswego	12.5%	24.6%	24.5%	35.8%	46,640
Otsego	20.7%	41.5%	24.3%	47.5%	23,409
Putnam	6.1%	15.1%	13.7%	30.2%	34,470
Queens	13.9%	30.5%	23.2%	41.2%	784,552
Rensselaer	13.0%	24.4%	20.6%	38.1%	65,790
Richmond	16.9%	28.3%	20.3%	33.7%	166,297
Rockland	13.8%	23.5%	18.6%	34.5%	101,424
Saratoga	8.1%	17.6%	15.7%	34.3%	93,547
Schenectady	16.9%	24.9%	24.2%	38.9%	62,534
Schoharie	25.0%	46.5%	27.4%	50.3%	12,559
Schuyler	21.2%	37.9%	21.9%	50.2%	7,324
Seneca	20.4%	36.6%	25.1%	45.3%	13,564
St. Lawrence	19.9%	33.5%	32.6%	42.0%	42,832

Steuben	15.6%	34.2%	27.1%	48.1%	39,283
Suffolk	7.3%	15.4%	12.6%	30.3%	499,744
Sullivan	13.8%	24.3%	26.2%	44.5%	28,960
Tioga County	16.7%	30.5%	19.8%	44.4%	20,030
Tompkins	13.5%	23.1%	12.8%	36.5%	40,322
Ulster County	12.6%	21.2%	21.5%	46.0%	69,376
Warren	13.3%	25.5%	21.1%	36.4%	29,593
Washington	20.3%	43.8%	25.9%	46.0%	24,014
Wayne	15.1%	30.2%	27.1%	39.0%	36,634
Westchester	11.4%	22.0%	16.9%	32.3%	355,136
Wyoming	22.7%	42.4%	25.7%	47.8%	15,917
Yates	24.6%	41.1%	26.9%	54.3%	8,919
ALL NY	14.0%	26.7%	22.2%	38.5%	7,442,253
Source: American Community Survey 2019.					

NYSED Reports on Results of the Digital Equity Survey

To best serve students, families, and educators, it is imperative that NYSED has an accurate picture of the state of digital equity for New York students and teachers. In Spring 2020 and Fall 2020, NYSED required public schools to provide information on student and teacher access, in their places of residence, to devices and the internet. Reports on the surveys are available on the NYSED website.