

1. Welcome

Chair Christie Angel

2. Panel Presentation – Digital Inclusion

Autumn Glover – President, PACT/Wexner Medical Center

Sam Orth – Director, City of Columbus Department of Technology

Angela Siefer – Executive Director, National Digital Inclusion Alliance

3. Panel Discussion

4. Closing Remarks

Chair Christie Angel

Director Michael Stevens

Recovery and Resiliency Advisory Committee Mission Statement:

The goal of this advisory committee is to guide an inclusive, equitable, and stronger recovery for all members of our community.

Recovery and Resiliency Advisory Committee Phase 1 Schedule

10/29

- ECONOMIC BASE
- JOB READINESS

11/10

- FOOD SECURITY:
- HOUSING:

11/18

- SMALL BUSINESS

12/2

- DIGITAL INCLUSION

12/9

- DEVELOPMENT

12/16

- GOVERNMENT

1/6/21

- ACCESSIBLE MOBILITY OPTIONS

1/13/21

- HIGH GROWTH/VENTURE

1/20/21

- TRAVEL/TOURISM/CULTURAL INSTITUTIONS

1/27/21

- NO PANEL – PHASE 1 WRAP UP/PHASE 2 PLANNING

***All meetings EXCEPT 10/29 and 11/10 will be held on Wednesday afternoons from 3:30-5pm*

TECHNOLOGY

A Signal Failure: Education, Broadband, and Our Children's Future



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By Christopher Mitchell

One of the longest-lasting effects of the COVID-19 pandemic may be the lost education opportunities for millions of children. While the vast majority of children studying remotely are adversely affected, several million students have no home broadband internet access at all. As a result, they have been extraordinarily disadvantaged. For too many, public schooling has effectively ended.

This reality is keeping many teachers and administrators up at night, wondering what they can do to help these kids who may lose years' worth of education. In some places, communities have very limited power to connect families to the internet. That job is being done, to varying degrees of success, by private companies. But Chattanooga, Tennessee is not just one of a few hundred places to have built their own broadband network; they are rapidly [connecting every child](#) in the free/reduced lunch school program to very-high-speed internet access at no charge to the family. Some 17,000 families with more than 30,000 students are already starting to receive 100/100 Mbps service. (Don't worry about the jargon—it means a fast connection, easily able to support all manner of simultaneous applications.)

Chattanooga's specifics are interesting and replicable in some cities, but the key point is that they recognized that though internet access is essential for everyone in the community, existing providers lacked the right incentives to get everyone online. Powerful monopoly ISPs [Internet service providers] like AT&T, Charter Spectrum, and Comcast Xfinity are for-profit corporations. Sometimes they'll run programs in the public interest to connect a

group of low-income families, but that's not their mission. Their focus is on maximizing profits by charging as much as they can to a large number of subscribers. Their business model is not concerned with connecting everyone; it is centered on connecting everyone who can pay an often-high monthly fee.

The profit-maximizing motivation for those companies does not make them evil, or even necessarily wrong to charge for what they do. Very few people ask Cargill or Nestlé why some people have food insecurity. That isn't their problem. Frankly, there is no reason to think they would be particularly good at solving food security for people in vastly different circumstances around the world.

These basic truths also shouldn't stop policymakers from enacting the right rules to ensure those corporations have the right incentives and rules to act within. The point is that solving the problems of internet access goes well beyond throwing billions of dollars at the companies with the best lobbyists or most convincing executives.

There is no single policy to solve the broadband problems faced by the nation. In most cases, better networks and lower prices would really help, but achieving that would require different strategies in rural or urban areas. Challenges around literacy and online safety/security will be more difficult.

But none of this is new. In many ways, we are reliving the years of electrification. The for-profit private sector spent tremendous amounts of money to build the grids they could justify to investors. Like cable and telephone companies today, they would frequently cite their large network investments to distract from the other side of the equation—all the people who were left out.

The answer then is the answer now: nonprofit business models. In a nation as large and varied as the United States, a single business model rarely meets everyone's needs. Universal electricity required some 4,000 municipal electric departments and nearly 1,000 rural electric cooperatives. And it worked. Not because municipal network and cooperatives are magical, but because they have the right incentives.

Building rural infrastructure requires a long-term focus on what helps the community to flourish rather than how much profit a network can extract from it. Connecting historically marginalized urban families requires much more than a billing system that charges \$65/month to each family that passes the credit check. Success requires an organization measuring itself on whether it is creating new opportunities and ending poverty rather than if it has increased the average revenue per customer line.

Who's Left Behind?

Depending on the data source, somewhere between 15 and 41 million Americans cannot buy a reasonable broadband connection today because their home is not served by an ISP. Most, but not all, of these homes are in rural America, and we typically talk about this problem as being one of "access." Tens of millions more Americans live in a location that's served by an ISP, but they cannot afford the fees or face other barriers such as lacking a device or digital literacy. This problem is typically referred to as a lack of digital inclusion, or the *digital divide*, although these terms are often tossed around loosely.

Lower income families and people of color are the most likely to be unable to use the internet at home. [According to the Pew Research Center](#) in 2019, 79 percent of white adults were home broadband users while only 66 percent of Black adults and 61 percent of Latinx adults were. These numbers spike among families that do not have a stable home or suffer from various disabilities or dependencies.

Rather than tackling these challenges, the big providers realize a higher return investing more in wealthy neighborhoods. Families in some areas of many cities now can choose from two or three decent options, even as within a mile scores of families cannot afford access at all, except maybe via their cell phones.

Massive subsidies to the big providers do not change this dynamic. The Federal Communications Commission gave AT&T \$283 million over six years just for Mississippi. The state of [Mississippi is investigating](#) this, because so few people benefitted. My organization, the [Institute for Local Self-Reliance](#), found that rural subsidies to monopolies [did little to shift](#) their investment to those who needed it.

Government can write subsidy checks to AT&T and Charter Spectrum, but profit is profit. These firms want to serve customers who can pay, don't move frequently, and already have digital skills (to reduce tech support costs).

What are Nonprofit and Public Alternatives?

Nonprofit approaches have already proven their viability in expanding broadband access. Nonprofit rural telephone co-ops began offering broadband as soon as technology allowed it. Today, the vast majority of rural [North Dakota has fiber optic internet access](#) from a telephone cooperative or small local private company

that behaves similarly.

Nonprofit rural electric cooperatives are rapidly expanding to also offer fiber optic Internet access. More than 100 already have residential customers, and nearly all of Mississippi's rural electric cooperatives are [building networks](#) now that the state has used CARES Act money to jump-start investment. While the state searches for homes AT&T was supposed to upgrade on the federal dime, the co-ops are building the most advanced networks available in the nation for far less.

Municipal networks, where local governments finance and build a network that they either operate themselves or lease to one or more partners, now operate in more than 500 communities. These networks focus on expanding Internet access to ensure economic development, educational opportunities, and improved quality of life for all. While they are often designed to pay for themselves with broadband fees, their goal is to benefit the community rather than maximizing revenue.

All of these models are working well, even though there are some failures. There is no panacea, but this raises a key difference: These models are accountable to the community. Cooperative member owners determine the management. Municipal networks are governed by people who stand for election. This oversight power is a key incentive for the network to serve the public interest.

Nonprofit business models are also essential to building digital skills and distributing devices to people who cannot connect today. Organizations like [Tech Goes Home](#), [PCs for People](#), E2D ([Eliminate the Digital Divide](#)), [and Community Tech Network](#) have pioneered trainings and work with historically marginalized groups to teach essential digital skills and put devices in their hands. These programs make sure people can actually use the internet access that will soon be available to them.

How Do We Close the Digital Divide?

Nonprofit and public business models electrified the United States but have yet to be fully embraced as a solution for broadband, which ironically fits the country's electrification history perfectly. When cities began building their electric grids, power companies fought it dramatically. If you dig through popular magazines of the early 1900s, you will find claims that if cities owned electric networks, it would destroy the market economy. Today, 19 states limit community networks because of similar logic persuasively presented by entrenched lobbyists in state capitals.

The history of electrification shows that nonprofit business models are an essential complement to the predictable failures of for-profit firms to meet US infrastructure needs. But it also shows that private interests will use all tools available to delay and prohibit rival approaches.

Electric cooperatives started long before the 1935 Rural Electrification Act, but they were only supercharged when the federal government offered financing and low-cost power through massive public works dam projects. The fight to establish the REA was contentious and featured talking points that resemble those you can find today. Ohio is considering a new broadband subsidy program that will bar community networks and cooperatives from receiving support. Michigan's program allows co-ops to apply but bans community networks despite the model gaining traction in rural areas.

The first rule of holes is to stop digging when you want to get out of one. But the [19 states that limit community networks](#) have decided that a community without private sector interest in building a network should wait, and wait. With the exception of North Carolina, nearly all these laws are now 15 years old or older—the big monopolies have had their chance. Local private companies often want to partner with cities to overcome the high costs of building a network, but states often limit partnerships just as severely as direct municipal approaches.

The result is odd. Most municipal networks are financed by private investors and do not use taxpayer dollars. Tennessee and North Carolina would prefer to subsidize private companies with public dollars rather than allow communities to build networks (often in collaboration with local private companies) at no cost to the taxpayer. All in the name of preserving the free market.

The first step to getting everyone connected is to remove barriers. Allow nonprofit and public approaches to at least compete on a level playing field for state and federal subsidies. This policy follows the most recent federal broadband subsidy program—ReConnect from the Department of Agriculture. Created under a Republican Congress, and signed by President Donald Trump, it allows public and nonprofit business models, as well as tribal governments, to compete for support on equal terms.

This is a good first step because it does not even require an appropriation from the states—they just have to get out of the way. Some states may not see these models used frequently, but others will follow the path of western Massachusetts, where Westfield is helping 20 of its neighboring towns to build their own networks. In coming years, these models will rapidly transform rural access to be competitive and even superior to what is commonly available in cities.

Cities face a greater challenge because the stakes are higher. Cable and telephone lobbyists have shaped rural broadband subsidy programs but see an existential threat in programs aimed at improving urban Internet access. These are the most lucrative areas, even when they leave many low-income families behind.

The low-hanging fruit in urban areas is in public housing and concentrated areas of poverty. High-rise apartments with low-income residents offer opportunities for low-cost connectivity, as [demonstrated by San Francisco](#) and an innovative longtime local ISP, Monkeybrains. In many cases, these buildings can offer very-high-speed access to each unit for a one-time installation cost of a few hundred dollars and an ongoing cost of \$10 per month. These approaches often involve a mix of fixed wireless on rooftops and fiber optics in the streets, but the key to success has been creativity, coalitions, and perseverance.

School districts in many communities have realized they cannot wait for other solutions and have embraced building wireless networks serving students well outside school walls. [Utah is piloting 25](#) of these networks, and [San Antonio has committed](#) more than \$20 million to connect kids in their homes using Citizens Broadband Radio Systems (CBRS), which are expected to deliver higher through-put and reliability.

Unfortunately, the school districts are struggling just to connect kids—they aren't likely to do much for a senior living alone on a fixed income. As cities try to connect people living in fourplexes or single-family homes, costs increase significantly. It can run \$500 to \$2,000 to connect a home to a high-quality network.

The ultimate goal—universal affordable connection—requires a significant public investment, but one particular model appears particularly promising for urban areas. If you used the Internet in the 1990s, you probably remember buying a modem and having your computer use the telephone line. ISPs simply had to get customers to dial their number to connect them; they didn't have to invest more than \$1,000 per home. Communities can reproduce that network with fiber optics today.

Cities, perhaps with the support of philanthropy for capital expenses, would build fiber networks in the neighborhoods with the greatest need. Qualifying residents, or perhaps anyone depending on local preference, would get a basic service for a nominal fee. Residents would pick which participating ISP would connect them to the Internet. Those who wanted faster speeds would likely pay more, but closer to \$40/month rather than the more common \$60+/month today.

Unlike the '90s, though, service providers would not only be companies with a gateway to the Internet. They might also be healthcare enterprises or offer local government human services. Rather than using the less secure open internet for these services, people would have secure connections over private links. A school device in the home would still effectively be directly on the school network. Schools, hospitals, and others could assume everyone has a home connection, leading to new innovations and efficiencies.

This open network would not pay for itself entirely, as most community networks do today, in part because it would fight for market share with the existing providers. Whether funded from philanthropy or a bond issue, the network would focus on paying its operating costs and achieving social goals, not repaying the full capital cost of its construction. Like our streets, which also do not pay their own way, the benefits from all the indirect activities enabled by the network would justify the cost. In effect, the network would have a one-time subsidy to help pay construction costs but would not require ongoing subsidies to operate.

Before getting too excited about these possibilities, there is one other challenge that must be addressed. For some people, the challenge of connectivity is in lacking the necessary literacy. The National Digital Inclusion Alliance is a network of groups around the nation that provides tech training and device distribution. Net revenues from the open network described above could help fund these programs until the demand for them declines.

These solutions offer far more promise for long-term sustainability and improving the quality of life for historically marginalized populations, but they will also introduce competition into areas controlled by politically powerful companies like AT&T and Charter Spectrum. Even people who can afford to pay high cable rates would prefer this open network approach.

Building a new network takes time and scarce resources. But the long-term costs of subsidizing a broken market are substantial. Sooner or later, those costs grow to be too great. And even today, it is not clear that the slow basic connections offered by Comcast and others are enough for families to use the Internet effectively. Some have proposed a larger federal subsidy to families to help them afford a faster connection.

If government—whether local, federal, or in between—doesn't do something along the lines sketched out above to meet local needs and achieve broadband equity, the monthly federal subsidy will ultimately lose political support. A \$40/month subsidy at least would be needed for most families to get a decent cable connection, nearly \$500 per family per year. Every ten million families will cost more than \$5 billion per year. And if the subsidy stops, all those families lose their connections.

Embracing nonprofit and public business models may be politically more challenging, but it offers far greater benefits. These approaches do not stop or even degrade if future governments cease appropriating funds—the networks will generate sufficient funds for operation and perhaps even modest growth.

Many schools and governments have reacted to the pandemic by helping families pay for a basic connection from large cable or telephone monopolies. Some have recognized this is an opportunity to permanently solve the problem—like Chattanooga, where all low-income students will have excellent home broadband until at least 2030.

We face a choice. In the wake of the racial justice uprisings, is it time to demonstrate a commitment to real equity by building better networks using nonprofit and public business models? Doing so will allow communities to permanently solve connectivity challenges, improving equity in education, healthcare, and far more.

ABOUT THE AUTHOR



[Christopher Mitchell](#)

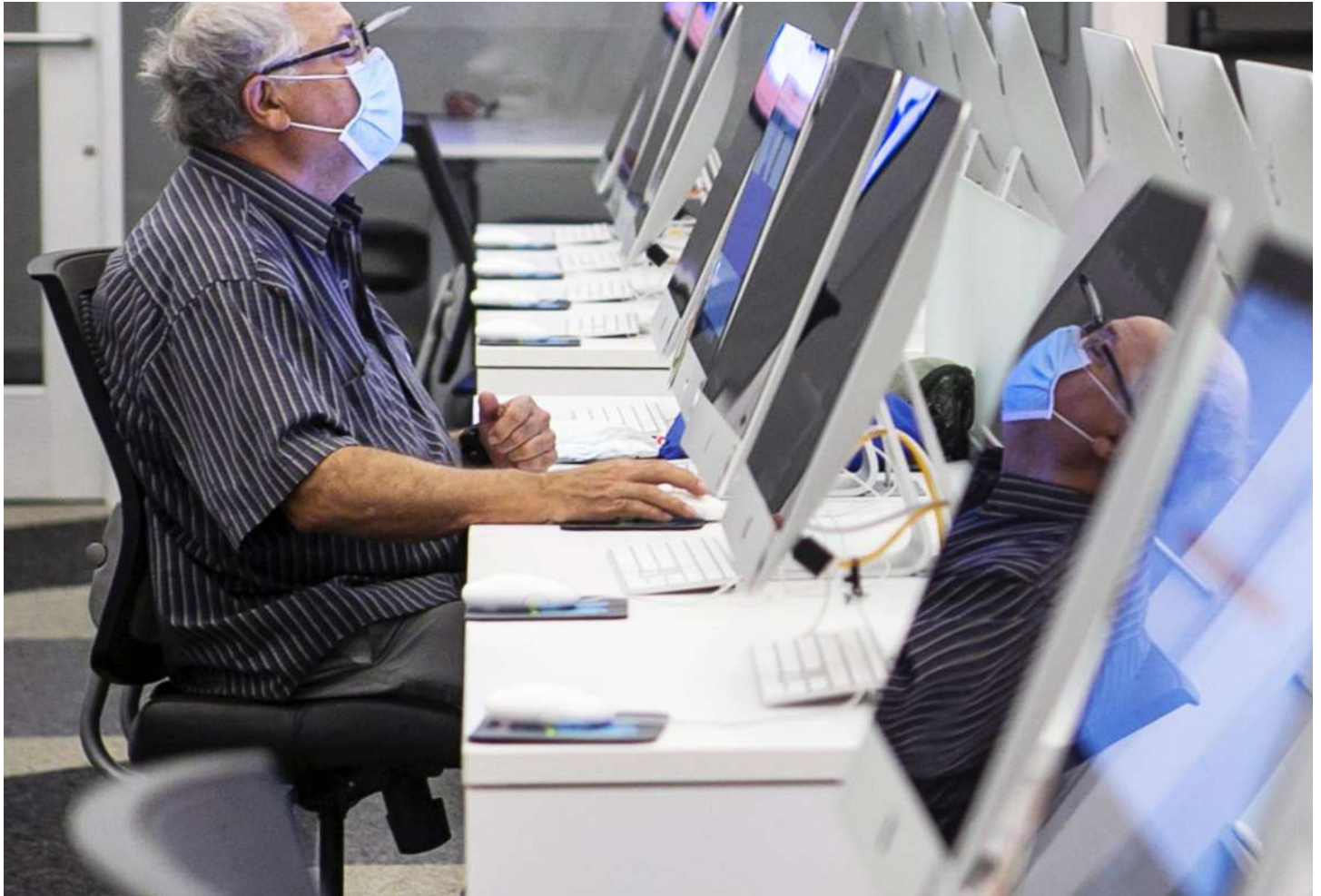
Christopher Mitchell is Director of the Community Broadband Networks Initiative at the Institute for Local Self-Reliance (ILSR). On a day-to-day basis, Mitchell runs MuniNetworks.org, a comprehensive online clearinghouse of information about community broadband.

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network for students

Alia Malik

July 24, 2020 | Updated: July 24, 2020 9:23 p.m.



Carroll Dorrill uses a computer at BiblioTech South in San Antonio on May 4, after the county's all-digital library system reopened branches. Starting this fall, a fiber optic network that connects libraries, traffic lights and other infrastructure will be used to bring internet connectivity to students in neighborhoods that need it most.

Photo: Josie Norris /Staff Photographer

The city of San Antonio will leverage traffic lights in its plan to connect 20,000 students' homes to their schools' wireless networks.

"In order to get into a neighborhood, you have to go where the infrastructure is," said Craig Hopkins, the city's chief information officer.

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San Antonio's stark income inequality is reflected in its gaping digital divide. Almost 40 percent of households don't have fixed internet access, according to a Federal Reserve estimate. The neighborhoods most in need of reliable connections are inside Loop 410 and on the Southwest Side, a city analysis found.

The problem worsened for students after the coronavirus pandemic shut schools in the spring, pushing classes online. San Antonio's school districts will also begin the school year completely online next month, with no classrooms opening until after Labor Day.

Poll: [San Antonio parents share their back-to-school plans](#)

The Connected Beyond the Classroom project's pilot phase will roll out this fall in six West Side neighborhoods in the Edgewood Independent School District and around Lanier High School in San Antonio ISD.

Using \$27 million in federal coronavirus relief funds from the CARES Act, the city eventually will provide the wireless broadband to students in the 50 neighborhoods with the highest need, spanning eight school districts.

The fiber-optic cables contain substantial amounts of unused "dark fiber" that the city, per an agreement with CPS Energy, has the right to use. Crews will run new cables into neighborhoods from traffic lights, libraries and other connection points along the existing network.

Mini-towers and antennae will also be installed on vertical structures — including traffic light poles — to diffuse the signal, Hopkins said.

The newly-activated fibers will make school district networks available to students in the affected neighborhoods. They'll see their district's network on their computers and

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that prevent municipalities from competing with internet service providers, city officials said.

“We were asked to connect students in their homes to their school systems,” Hopkins said. “We were not asked to give them public internet. We were not asked to make their households have the internet.”

Because no one is using the “dark fiber” in the existing cables, the expansion will not interfere with city or CPS Energy activities.

On ExpressNews.com: Digital divide suddenly wider

SAISD Superintendent Pedro Martinez touted the plan Thursday at a national conference of journalists who cover education.

“For the first time, neighbors will want more traffic lights,” he joked.

SAISD is wrapping up installation this summer of its own 80-mile fiber-optic network to upgrade connections at schools and district offices, funded with a \$7 million Federal Communications Commission grant. The city can also expand from SAISD’s new network to connect student homes in some neighborhoods, Hopkins said.

SAISD handed out 4,000 wireless hotspots to students learning remotely during the coronavirus pandemic and is acquiring 10,000 more, Martinez said.

Hotspots are a short-term solution to an emergency situation, but the CARES Act funding gave San Antonio an opportunity to help close the technological “homework gap” in a lasting way, said Brian Dillard, the city’s chief innovation officer.

“People have been learning remotely for the past two decades,” Dillard said. “This solution should have been in place before.”

To do schoolwork, and especially to attend classes via videoconference during school shutdowns, students need high-speed broadband-level connections better than those on

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The city will connect the West Side neighborhoods, where need is highest, by December. After working out the bugs there, city officials expect the remaining 44 neighborhoods will be connected rapidly, by September 2021.

In addition to parts of Edgewood and SAISD, the project encompasses neighborhoods in the North East, Judson, Harlandale, Northside, Southwest and South San Antonio school districts.

They were chosen based on four factors: the city's "equity atlas map" identifying the most vulnerable communities based on race and income; the city's digital inclusion survey that wrapped up in February; connectivity data from the U.S. Census Bureau; and discussions with a digital inclusion task force that included school district representatives.

The CARES Act is paying for the city to install new infrastructure to expand its wireless network for students. If gaps in the city's network are identified during the work, the city hopes to use dark fiber from school districts or, as a last resort, lease it from telecommunications companies, Dillard said.

But families also need devices, such as satellite dishes or air cards, to receive the signal. Entities other than the city — potentially school districts — need to be responsible for upgrading or servicing those in-home devices, Hopkins said.

The city will order some equipment next week and then start setting up the core network that goes into the city data center, he said. After that, electrical power and network cables will be installed on rooftops. Anything on steel poles will be deployed last because steel takes up to eight weeks to deliver and steel pole installations require soil analysis and special permits, Hopkins said.

Alia Malik covers several school districts and the University of Texas at San Antonio. To read more from Alia, [become a subscriber](#). amalik@express-news.net | Twitter: [@AliaAtSAEN](#)

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