NORTH CAROLINA DEPARTMENT *of*
INFORMATION TECHNOLOGY

Roy Cooper
Governor

J. Eric Boyette
Secretary and State Chief Information Officer

EMPOWERING AND CONNECTING COMMUNITIES THROUGH DIGITAL EQUITY AND INTERNET ADOPTION

Testimony before

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Introduction

Good morning Chairman Pallone, Ranking Member Walden, Chairman Doyle, Ranking Member Latta, and members of the Subcommittee. My name is Jeff Sural, and I am Director of the Broadband Infrastructure Office (BIO) within the North Carolina Department of Information Technology (NCDIT).

On behalf of Governor Roy Cooper and State Chief Information Officer Eric Boyette, I'd like to thank you for the opportunity to share North Carolina's approach to ensure all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy.

As the Members of the Subcommittee know, an affordable high-speed internet connection now is essential to living, learning, working, and thriving in the modern economy. In North Carolina, much like the rest of the country, not having the internet in your home makes it harder to see a doctor or a nurse without leaving your house; harder to do homework outside of a classroom that no longer gives you a textbook; harder to start a small business or pursue a career; and in many cases, harder to interact with your state and local government.

In North Carolina, Governor Cooper has prioritized expanding broadband access as well as encouraging adoption. In March 2019, he issued an executive order creating the Governor's Task Force on Connecting North Carolina and directing Cabinet agencies to take all available actions across state government to spur investment in broadband infrastructure, eliminate government obstacles to deployment, and close the digital divide and eliminate the homework gap.

Today, I will share our North Carolina perspective on the challenge of the digital divide and its impacts, discuss the barriers to broadband adoption, and describe our holistic approach to improving adoption across our state.

The adoption problem

In the broadband world we talk about broadband as two sides of the same coin: the access side—the access to the pipes and wires, and the adoption side—whether a household subscribes to the service. A household or a community needs both sides of the metaphorical coin to realize the value that broadband promises. In North Carolina we recognize adoption as an equally important factor to addressing the digital divide. We are leveraging grants and creating partnerships to understand the issue better, pilot innovative ideas, and create viable and sustainable solutions.

In recent decades, a wide range of organizations have shifted their services online including educational institutions, businesses, and government agencies. The reason for this shift is clear. Online services reduce organizations' costs and increase their efficiency. Importantly, the benefits of broadband adoption are not limited to organizations, but also extend to individuals.

For instance, research demonstrates that individuals who adopt broadband are more likely to find jobs, learn new skills, and successfully navigate social services than those who do not adopt. Improving adoption rates is, therefore, a key strategy for educational success, civic engagement and economic growth.

Low adoption results in a loss of opportunity: educational, economic, income, civic and cultural. The consequences undermine society by further dividing the haves from the have-nots. And while broadband adoption is a challenge felt in urban areas of North Carolina and across the country, the relative lack of investment in deployment of broadband infrastructure in rural areas concentrates these effects in ways that further depress economic opportunities.

Research shows that the sheer availability of or access to broadband isn't enough to positively impact a local economy. Rather it's the adoption of it, when people actually have it in their homes, and use it in ways that positively impact their economic outlooks—that we begin to see a positive relationship between broadband and a community's economic health.[i]

The adoption problem in North Carolina is clearly demonstrated in the Federal Communication Commission's annual reports. The FCC estimated in 2019 that 94.8 percent of North Carolina households have access to broadband (25Mbps/3Mbps), while only 59.4 percent of households adopt at that speed threshold (the U.S. average is 60.2 percent). While there are many well-documented and well-founded problems with the accuracy of the FCC's data, the gap between access and adoption is a real problem – one that cannot easily be blamed by a lack of interest in internet access.

The most recent report from the American Community Survey puts North Carolina's household adoption rate for all internet speeds at 78.3 percent (the U.S. average is 85.1 percent). That survey also found that 12.6 percent of households do not have a computer of any type and 5.9 percent only use a smartphone to access the internet. This means that 18.5 percent or 726,122 North Carolina households have no access to a meaningful device – a laptop, desktop, or tablet.

Individuals with lower levels of education, income, and who are elderly or disabled are less likely to adopt broadband.[ii] Research demonstrates that disparities by education and income are consistently larger than those observed by any other factor, including population density. The *2013 Citizens Survey* found that individuals with a graduate degree and who made $100,000 or more per year were more than twice as likely to adopt broadband than those with less than a high school degree and who made $15,000 or less per year. This suggests that individuals with lower levels of education and income are not adopting even in areas where broadband is readily available.

Broadband is a sector-crossing technology – it benefits all walks of life. When communities have affordable access and high adoption rates, opportunities in all sectors are made possible. However, the challenges created by the digital divide and the opportunities that are possible if we close it are unique in each industry.

For example, in the education sector, the digital divide manifests itself in what's called the homework gap. The homework gap occurs when students are assigned homework that requires using the internet, but they don't have access to an internet connection or device at home.

Similarly, telehealth is one of the many benefits of broadband. Telehealth is the virtual delivery of a wide variety of healthcare services, health information, and health education. We envision a North Carolina where any North Carolinian that wishes or needs to access health care services virtually is able to do so and where all health care facilities have the broadband capacity needed to operate effectively and efficiently. Telehealth relies upon consistent, reliable, and pervasive broadband.

We continue to explore the economic impacts of the digital divide on our state. More and more emerging research is quantifying this divide. For example, the Chamber Technology Engagement Center at the U.S. Chamber of Commerce and Amazon issued a report showing that adoption of digital tools by North Carolina's rural small businesses generated more than 15,000 jobs over the past three years.[iii] While sales growth among this class of businesses exceeded 20 percent over that time period, the study estimates the rest of the state missed out on an additional 19 percent sales growth.

Other reports, like the Strategic Network Group's broadband calculator, estimate that an increase in the adoption of digital tools (*e.g.*, selling, advertising, customer support) by just five percent of North Carolina's rural small businesses would create more than 6,000 jobs and generate $16 million in tax revenues. This need is made more urgent by the fact that our small businesses employ 80 percent of the workforce.

Identifying barriers to adoption

Broadband coverage is a key determinant of adoption. Individuals can only adopt broadband in areas where it is available, which tend to be areas that are densely populated and thus incentivize investment by internet service providers. It is not surprising, therefore, that adoption rates are higher in densely populated areas than sparsely populated areas of the state. However, broadband coverage is not the only factor that limits adoption. Subscription costs, a lack of access to devices, relevancy, and digital literacy restrict adoption rates even in areas with sufficient broadband coverage.

Subscription cost is the main barrier to adoption among households with access. In 2015, the Pew Research Center found that subscription costs are the primary barrier to adoption for 33 percent of non-adopting households nationwide.[iv] This is especially true among low-income households. As mentioned earlier, North Carolina's high-income households are more than twice as likely to adopt broadband than low-income households. A lack of access to a digital device—such as a laptop, tablet or computer also discourages broadband adoption. The 726,000 North Carolinian households who don't currently have a digital device are unlikely to subscribe to an internet service.

Relevancy and digital literacy also restrict adoption rates. Relevancy is the belief that broadband is useful or necessary for daily life. Research suggests that among North Carolinians who choose not to adopt broadband, 27 percent believe broadband is not useful and 43 percent believe that they simply do not need it.[v] These findings are an improvement from 2011, when 33 percent reported that broadband is not useful and 49 percent reported that they did not need it.
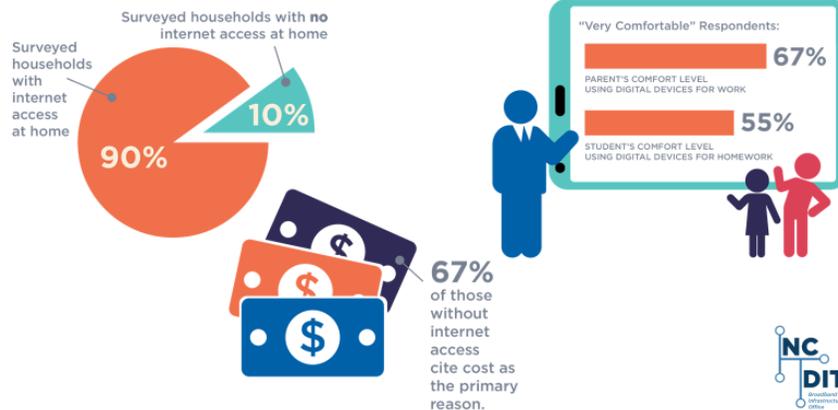
Digital literacy is the ability to use broadband technology to find, evaluate, create, and communicate information.[vi] Individuals who feel that they lack the knowledge to use broadband internet and related technologies or who feel that they are unable to learn how to use them have lower adoption rates. Research suggests that 20 percent of North Carolinians who do not adopt broadband believe that computers are difficult to use and 24 percent report that they do not know much about them. These numbers have increased since 2011, with 10 percent reporting that computers are difficult to use and 13 percent reporting that they do not know much about computers.[vii]

Likewise, we can mitigate the cost barrier. In 2013, NC Broadband conducted a rigorous experimental study to examine how altering subscription costs affects adoption among low-income households. The study, referred to as NC LITE-UP (NC Linking Internet to Economically Underprivileged People), was conducted in Wilkes and Durham counties from January 2013 through August 2014. The study randomly assigned 179 households in those counties to receive broadband subsidies of 0, 50, or 100 percent. Results revealed that (1) households that received a subsidy had higher adoption rates than households that did not; (2) adoption rates among households that received 50 percent and 100 percent subsidies were similar; and (3) nearly 80 percent of households that received subsidies retained broadband service after the study ended.[viii] This suggests that reducing subscription costs for low-income households, even temporarily, will increase adoption rates in this group.

Additionally, study participants became more fully active digital citizens, using the internet at home and in other settings at a much higher rate and for many additional purposes by the end of the project. With home access, the weight of their internet use shifted from the strongly pragmatic (job searches, government services, and paying bills) to much greater use to seek health and educational information, support social connections, and conduct e-commerce.

Last year, the Department of Information Technology's Broadband Infrastructure Office published "The Homework Gap in North Carolina," a report that provides communities and state and local policymakers with strategies to bridge the homework gap.[ix] The report showed that at least 10 percent of the approximately 8,500 K-12 families surveyed did not have access to the internet at home. Those without access cited cost as the primary reason for not having access. Additionally, those without access were less comfortable helping their kids with digital homework.

The Homework Gap

We also partnered with the Department of Public Instruction and the State Board of Education to add homework gap questions to the bi-annual Teacher Working Conditions Survey to understand the frequency at which homework assignments are made that require internet and computer access. The survey showed that 70 percent of high school teachers, 60 percent of middle school teachers, and 43 percent of elementary school teachers regularly assign homework that requires internet access to complete. This means that too many of our state's children are unable to thrive in school, and many may not be prepared to fully participate in today's workforce simply because they don't have internet or the computer to use it at home.

North Carolina's solutions and initiatives to close the Digital Divide

In North Carolina, we are focused on tackling barriers to adoption even as we invest in the expansion of broadband infrastructure to improve availability across the state. The Department of Information Technology's Broadband Infrastructure Office and our colleagues across Governor Cooper's administration are working to support local investment and planning efforts, coordinate with digital equity leaders across the state, fully leverage federal and other grant resources, and partner with industry and the non-profit sector to identify in solutions to the digital divide.

We formed the N.C. Digital Equity and Inclusion Collaborative in 2017 to gather and learn from leaders in the digital equity community across the state who are working to close the digital divide. This collaboration allows us to strategically and comprehensively address the causes of the digital divide. The group's mission is to foster collaboration among digital equity and inclusion leaders to bridge the digital divide in North Carolina. The group consists of 17 organizations from across the state, including non-profits, universities, and state agencies. The Collaborative led the development of the plan to create three annual "days" designed to bring awareness and resources to address the three main causes of the digital divide. The three days are: 'Device Day,' 'Digital Literacy Day,' and 'Broadband Adoption Day," and will be implemented in 2020.

The Broadband Infrastructure Office and the State Library of North Carolina won a $250,000 two-year grant from the Institute of Museum and Library Services to launch a pilot program to address the homework gap. The pilot partnered our offices with the local school district and the regional library in Robeson County to provided WiFi hotspots and digital literacy workshops to 34 families. Every family that completed the program received a computer from Kramden, a non-profit computer refurbisher located in the Research Triangle Park that also conducts digital literacy training and coding camps for students. In July, the program expanded to include three additional counties, Caswell, Hyde and Mitchell. To date, 62 families in the four partner counties have attended the digital literacy workshops. By the end of the pilot program we will publish a digital literacy playbook for libraries and other community organizations.

As part of Governor Cooper's Hometown Strong program to support rural communities, NCDIT/BIO and the N.C. Department of Natural and Cultural Resources, home to the State Library, partnered with nine library systems and four municipalities in 14 different counties to pilot the Homework Help program. Each library received $35,000 to purchase equipment such as Wi-Fi hotspots or computers to make available to students or other library patrons for home use. Counties include Anson, Bertie, Bladen, Chowan, Columbus, Edgecombe, Halifax, Hertford, Northampton, Richmond, Scotland, Tyrrell, Vance, Washington, and Martin.

At the same time, Governor Cooper's Task Force on Connecting North Carolina is updating the state broadband plan and creatively tackling issues like computer ownership, accessibility, and affordability.

In early 2019, our office partnered with the N.C. Department of Health & Human Services Office of Rural Health to secure a $98,273 grant from the Appalachian Regional Commission POWER fund to investigate and identify gaps, challenges and opportunities in the existing broadband and telehealth infrastructure in 20 western N.C. counties and explore how to better use technology to improve health and healthcare in the region.

We also partnered with the Office of Rural Health and East Carolina University to expand telemedicine service through the N.C. Statewide Telepsychiatry Program (NC-STeP) in four eastern North Carolina counties. NC-STeP connects 80 or more hospital emergency departments across North Carolina to provide psychiatric assessments and consultations to patients. In 2020, the funding will assist NC-STeP in expanding to additional health departments who have undergone readiness and implementation assessments.

Many of our larger municipalities are also working to close the digital divide with local efforts. For example, in Winston-Salem, a small non-profit, WinstonNet, has hosted digital skills trainings in computer labs across the city for 20 years. Similarly, in Durham, a group of volunteers from various non-profits and city agencies formed Digital Durham to close the homework gap in communities in East Durham.

And of course, in Charlotte, a nationally renowned group called the Charlotte Digital Inclusion Alliance is working aggressively and innovatively to close the city and county's digital divide. The Digital Inclusion Alliance is a partnership between the city, county, Queens College, Digital Charlotte, Johnson C. Smith University, and non-profits like E2D (Eliminate the Digital Divide), a computer refurbishing non-profit in Davidson County that employs high school students to refurbish laptops and hosts device distribution days in schools and low-income neighborhoods.

Conclusion

For all North Carolinians to realize broadband's full benefits, federal, state, and local leaders must design and implement concerted efforts to address the four primary barriers to adoption: lack of availability, cost, relevance, and digital literacy.

Governments can play an important role by convening stakeholders and educating the public. Governments also have relationships with those groups where adoption rates are low. Existing social services can be leveraged to educate and inform about resources that may be available to encourage adoption.

Competition drives affordability and innovation. We should continue to work on policies that incentivize competition. Where market forces are not working, successful evidence-based solutions include grants, subsidies, tax credits, and partnerships. Grants to internet service providers have been shown to lower the capital expenditures for deployment and affordable services. In North Carolina, we have also used grants to fund digital literacy programs and homework gap programs. Subsidies to customers make services affordable, while tax credits incentivize good corporate citizenship by internet service providers. For example, prior to 2013 the state provided a tax credit to telephone and cell phone providers that accepted the FCC's Lifeline subsidy. When that tax credit sunset, many providers no longer accepted Lifeline customers.

In North Carolina we have found that partnerships between the public and private sectors, particularly at the municipal or regional level, that work to address the specific causes of the digital divide their communities face are the only way we'll close the digital divide. We believe our approach has led to a dramatic increase in the adoption of broadband throughout the state. Between 2014 and 2019 the state's broadband adoption rate increased approximately 44 percent.

Thank you for the opportunity to speak with you today about North Carolina's comprehensive approach to closing the digital divide. I look forward to answering any questions from members of the Subcommittee.

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