AMERICAN INNOVATORS:

AMERICA'S NEXT TECH

UPGRADE

CONNECTING ALL AMERICANS

_TEC

U.S. Chamber of Commerce Technology Engagement Center

Our nation's future economic success, growth, and competitiveness depends on a thriving and innovative technology sector. Every company is a tech company and data-driven innovation is the foundation of businesses across the country.

The Chamber Technology Engagement Center (C_TEC) tells the story of technology's role in our economy and advocates for rational policy solutions that drive economic growth, spur innovation, and create jobs.

The U.S. Chamber of Commerce is the world's largest business federation representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations.

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EXECUTIVE SUMMARY

Over the last three decades, private sector investment in communications networks, particularly broadband, have helped transform the way that people work, learn, interact with their doctors and the healthcare system, and communicate with friends and family. Substantial progress has been made over the last 10 years to build out high speed broadband networks around the country. Massive private sector investment has been made and a greater proportion of Americans have access to high speed broadband than 10 years ago. The results of this investment and progress has been evident during the COVID-10 crisis with resilient networks and changing data uses.

Still, over 18 million Americans lack access to high-speed broadband and others, due in part to COVID-19, are struggling to adopt internet access even when available. In order to achieve the goal of connecting all Americans and reaping the benefits of telemedicine, smart cities, and distance learning, the U.S. Chamber of Commerce recommends the following policies:

- **Targeted Funding for Broadband Access and Adoption:** The Chamber supports targeted funding to increase access for unserved Americans without access to broadband in areas where deployment is cost prohibitive. In order to more efficiently determine where funding should be spent, Congress must fund the Broadband Deployment Accuracy and Technological Availability ("DATA") Act which tasks the Federal Communications Commission ("FCC") with mapping access.

In terms of broadband adoption, Congress needs to provide funding to address students who are unable to connect during COVID-19 and look at ways of improving Lifeline.

- **Permit Streamlining:** Without a functional permitting regime, funding for broadband can only go so far. The Chamber supports reauthorizing of the Fixing America's Surface Transportation Act's Title 41 ("FAST-41") and the National Environmental Policy Act ("NEPA") reform on a broader level. At the same time, state and local governments should be prohibited from dragging out decisions for applications as well as charging unreasonable and excessive fees.

- **Smart Regulation:** Congress should not apply regulatory frameworks from the turn of the 20th century to modern technology like the internet. The FCC should treat broadband as an essential service, not a public utility. The Commission should continue to embrace economic analysis. Finally, the federal government must develop a comprehensive, unified, spectrum management plan and examine how to remove regulatory barriers to the deployment of emerging technologies like the Internet of Things.

INTRODUCTION

Over the last three decades, private sector investment in communications, particularly broadband, networks has helped transform the way that people work, learn, interact with their doctors and the healthcare system, and communicate with friends and family. Businesses, hospitals, government agencies, and educational systems increasingly rely on high-speed internet connections for many aspects of their operations.

Substantial progress has been made over the last 10 years to build out high speed broadband networks around the country. Massive private sector investment has been made and a greater proportion of Americans have access to high speed broadband than 10 years ago. The results of this investment and progress has been evident during the COVID-10 crisis with resilient networks and changing data uses. Although gaps remain in broadband coverage, the Chamber is supportive of targeted efforts to reduce these gaps. As broadband is built throughout the country it increases the number of high-paying jobs for engineering, manufacturing, and field technicians who are employed.

However, the growth in high-speed internet networks has occurred unevenly. Millions of households in America sill lack access to broadband, creating the "Digital Divide" that impacts countless communities across the country. This divide is especially pronounced in rural and low-income communities: The Federal Communications Commission (FCC) estimates that roughly one-fifth of rural Americans do not have high-speed internet, while other research shows that 44% of households with incomes of less than $30,000 don't have home internet. Two fundamental issues are at play when it comes to the Digital Divide—1) lack of access in areas that are cost prohibitive to build out infrastructure and 2) issues related to adoption and affordability.

The U.S. Chamber of Commerce's Technology Engagement Center ("C_TEC) has led efforts in recent years to highlight the urgency of closing the digital divide in the United

States. C_TEC's 2019 report on rural access to digital tools showed that better adoption of online tools for rural small businesses could create over 360,000 jobs and generate an additional $84.5 billion in sales for businesses ("C_TEC Rural Report").[1] Another C_TEC report discussed how small business exports – which already amount to $540 billion annually and support six million jobs – could be drastically improved if businesses had access to technology to help them solve problems related to exporting. ("C_TEC Small Business Export Report").[2] C_TEC has also strongly supported the deployment of secure 5G technology throughout the country to improve connectivity.

America's communication infrastructure is still the envy of the world in large part due to private sector investment, but Congress and Federal regulators must continue to promote an environment that encourages further investment.

1. Unlocking the Digital Potential of Rural America (March 2019). Available at https://americaninnovators.com/wp-content/uploads/2019/03/Unlocking-the-Digital-Potential-of-Rural-America.pdf
2. Growing Small Business Exports: How Technology Strengthens American Trade (October 2019). Available at https://www.uschamber.com/sites/default/files/ctec_googlereport_v7-digital-opt.pdf

The importance of closing the connectivity divide goes beyond helping businesses increase their sales. The COVID-19 pandemic demonstrates how critical high-speed internet is for the healthcare system, education, and for the ability of people to work remotely. Despite predictions that America's internet infrastructure would become overwhelmed from increased usage during the pandemic, download speeds have remained steady. This is in no small part due to a return in 2017 to bipartisan policies that have encouraged private-sector investment in broadband.

COVID-19 has accelerated many of the changes to work and life that had already been occurring due to widespread internet access. It has also shown that without an effective partnership between the public and private sector to close the connectivity divide, many households and businesses will struggle to adapt to a rapidly changing world.

Policymakers must work to develop a strategic, long-term plan to ensure that all Americans have access to a reliable and secure internet connection. America's communication infrastructure is still the envy of the world in large part due to private sector investment, but Congress and Federal regulators must continue to promote an environment that encourages further investment. Dependable access to the internet can be achieved through an all-of-the-above approach that includes expansion of broadband to unserved areas, further deployment of 5G throughout the country, securing the communications network, and other types of connectivity like satellite.

Underscoring this strategy should be the same type of bipartisan, commonsense regulatory approach that has allowed the internet and other technologies to flourish in the United States over the last three decades. C_TEC will continue to work closely with all policymakers to close the digital divide and help create opportunities for all Americans.

THE BENEFITS OF CONNECTIVITY

ECONOMY & JOBS

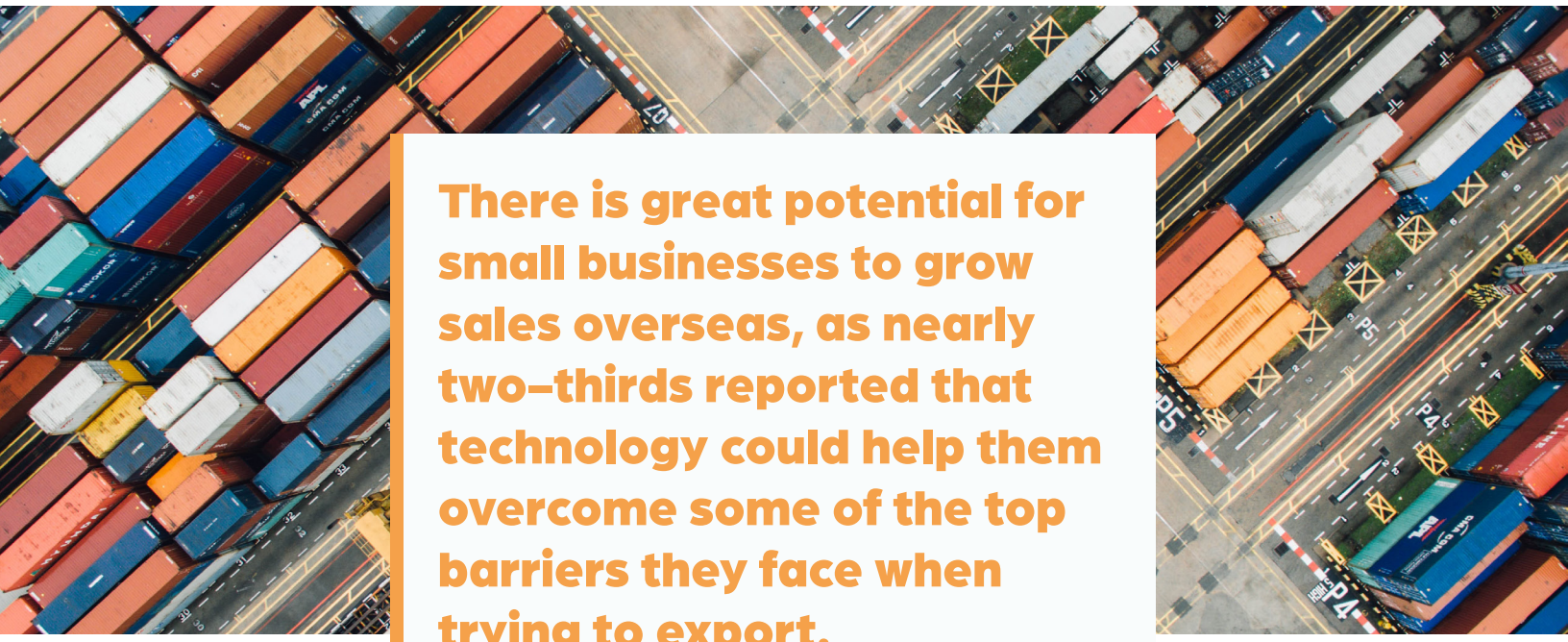
Since 1996, an estimated $1.7 trillion has been invested in broadband deployment in the United States.[3] The vast majority of this investment comes from the private sector and has been supported by bipartisan policies that encourage investment and take a cautious approach towards regulation. During this period and due to the fast internet connection that broadband provides many aspects of life and business in the United States have been transformed.

As with any technological revolution widespread access to high-speed internet has created ripple effects across the economy and society. The Bureau of Economic Analysis ("BEA") estimates that as of 2017, the "digital economy" accounted for $1.35 trillion of annual U.S. gross domestic product ("GDP") and supported over 5 million jobs. Digital economy workers on average earned nearly twice as much per year as the average worker in the United States.

3. USTelecom Industry Metrics and Trends 2020, The Broadband Association (February 2020). Available at https://www.ustelecom.org/wp-content/uploads/2020/02/USTelecom-State-of-Industry-2020.pdf

The digital economy also creates indirect benefits in terms of productivity for businesses that operate in all other sectors of the economy. American businesses rely on high-speed broadband connections for nearly every aspect of their operations—from talent recruitment and hiring to marketing and sales to Voice over Internet Protocol ("VoIP") phone systems and e-commerce solutions that enable them to compete in an increasingly global marketplace.

For example, the C_TEC Small Business Export Report showed how digital tools can help small businesses access markets overseas that they would not have been able to 20 years ago. These tools include online marketing, translation services, payment collection, and tools to help businesses navigate regulations and customs. There is great potential for small businesses to grow sales overseas, as nearly two-thirds reported that technology could help them overcome some of the top barriers they face when trying to export. This is significant, given that by 2017 small business exports already accounted for $541 in economic output.



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Beyond these clear benefits that connectivity provides to businesses, their employees, and their customers, high-speed broadband has also changed the way people read the news or find other sources of information, and has vastly improved the quality of public services, healthcare, education, and work/life balance for those that work remotely.

EDUCATION

Even before the COVID-19 pandemic, broadband had become a critical tool for students and educators at all levels of education. As a previous report from the Chamber put it: "Among the many technologies that have been heralded as a transformative solution for education in the United states...broadband has perhaps the greatest potential. This technology provides students, parents, administrators, and educators with a platform for enabling a wide range of innovative tools, services, applications, and hybrid approaches to teaching and learning."[4]

High school and higher education institutions have integrated web-based tools into their teaching platforms to help students manage schedules, submit homework or other assignments, and communicate with their instructors. By 2018, nearly 7 million college students were enrolled in at least one online undergraduate or postbaccalaureate course.[5] Studies have also shown a relationship between more students taking online courses with a decrease in tuition costs.[6]

At the K-12 level, access to broadband for all students—particularly those in rural or low-income communities where access may be lacking—is increasingly critical to meet the educational needs of students. Prior to the pandemic, it was estimated that over 70% of teachers assigned homework that required access to the internet.[7] Teacher interaction with parents has been facilitated through the use of websites, apps, and other tools that make it easier to communicate details about curriculum and school schedules.

4. The Impact of Broadband on Education (December 2010). Available at https://www.uschamber.com/sites/default/files/legacy/about/US_Chamber_Paper_on_Broadband_and_Education.pdf
5. U.S. Department of Education, National Center for Education Statistics (Fall 2018). Available at https://nces.ed.gov/fastfacts/display.asp?id=80
6. National Bureau of Economic Research Working Paper No. 20890 "Can Online Learning Bend the Higher Education Cost Curve?" (January 2015). Available at https://www.nber.org/papers/w20890
7. Consortium for School Networking "Scoping the Digital Equity Problem (Or the Homework Gap)" (September 2015). Available at https://cosn.org/blog/scoping-digital-equity-problem-or-homework-gap

HEALTHCARE

Broadband has also helped revolutionize many aspects of the healthcare industry and improved the ability of people to connect with healthcare professionals. High-speed internet access is especially beneficial for individuals who have difficulties in physically visiting their doctor on a regular basis, and a continuously growing number of health care employers are offering telemedicine for patients.

Broadband has helped doctors better observe the health of patients without having to schedule visits to the office. By 2015, over 800,000 patients worldwide were having their vitals monitored remotely by healthcare professionals.[8] The ongoing efforts to digitize health care records in the United States will also depend on widespread access to broadband for both healthcare providers and patients. This number has risen during the pandemic and according to CMS Administrator Seema Verma, nine million Medicare beneficiaries took advantage of telehealth in the early state of the COVID-19 crisis.[9]

REMOTE WORK

While investment in broadband had already created opportunities for more Americans to work remotely, the COVID-19 pandemic has greatly accelerated this trend, and many of the temporary arrangements that companies had put in place for employees are likely to become permanent.

One report from Gallup indicated that the number of Americans able to or considering telecommuting doubled from the first week in March to April, the first month of pandemic lockdowns in the United States.[10] A recent report from Recon Analytics found that over 40% of workers in the U.S. are able to work remotely, and that 51% of those able to

8. IHS Technology "Telehealth and Remote Patient Monitoring" (November 2016). Available at https://cdn.ihs.com/www/pdf/Global-status-overview-of-virtual-healthcare.pdf
9. Seema Verma, "Early Impacts of CMS Expansion of Medicare Telehealth During COVID-19," Health Affairs (July 15, 2020) *available at* https://www.healthaffairs.org/do/10.1377/hblog20200715.454789/full/.
10. Megan Brenan, "U.S. Workers Discovering Affinity for Remote Work," Gallup (April 3, 2020) *available at* https://news.gallup.com/poll/306695/workers-discovering-affinity-remote-work.aspx.

work remotely are considering moving to a smaller city or town to improve their quality of living while still being able to remain in their current positions.[11] Over 75% of respondents also stated that they would not move to a new neighborhood that does not have broadband. These findings underline how indispensable reliable broadband access has become in the workplace and how it will help shape the future of work in America.

INTERNET OF THINGS ("IOT")

The IoT is made up of certain items (e.g. tags, sensors, or devices) that connect through a network from which data can be collected, shared, and analyzed. The IoT includes devices such household appliances (e.g. refrigerators and HVAC systems), personal hygiene products (e.g. toothbrushes), medical devices, autonomous vehicles, smart phones, smart roads, smart electric meters, and machinery, to name just a few. The utility of IoT includes making everyday chores easier, using a smart phone to share data, or actively monitoring an individual's health condition through a connected medical device. IoT has been referred to as the "next economic revolution" and some have estimated that its total economic impact could be as much as $14.4 trillion by the year 2025.[12]

IoT is also a fundamental component of "smart cities," which involves the increasing use and analysis of data to improve transportation and congestion, emergency response times, and delivery of social services. One report found by Accenture projected that 5G technology used in smart city IOT would provide up to $250 billion in investment leading to an increase of about $500 billion in GDP and 3 million new jobs.[13]

11. Recon Analytics "Broadband 2020: How the Pandemic Changed Usage and Priorities" (August 2020). Available at http://reconanalytics.com/2020/08/broadband-2020-how-the-pandemic-changed-usage-and-priorities/#:~:text=Broadband%202020%3A%20how%20the%20pandemic%20changed%20usage%20and%20priorities,-Posted%20on%20August&text=A%20new%20report%20called%20%E2%80%9CBroadband,States%20are%20able%20to%20telecommute.
12. Mercatus Center "Projecting the Growth and Economic Impact of the Internet of Things" (June 2015). Available at https://www.mercatus.org/publications/technology-and-innovation/projecting-growth-and-economic-impact-internet-things
13. Accenture Strategy, "Smart Cities: How 5G Can Help Municipalities Become Vibrant Smart Cities," (2017) *available at* https://www.accenture.com/_acnmedia/PDF-43/Accenture-5G-Municipalities-Become-Smart-Cities.pdf#zoom=50.

One sector of the economy that will benefit from IoT deployment is manufacturing. Advanced Wi-Fi and 5G technologies in combination with artificial intelligence will power economic gains in automated factories. One estimate pegs the value of the global IoT manufacturing market at $575.36 billion by 2025.[14]

Not only is IoT estimated to be an economic gamechanger but it also is playing a crucial role in mitigating COVID-19 risks. General Electric has developed a solution that enables healthcare workers to remotely monitor ventilators cutting down on the number of contact points between coronavirus patients and staff.[15] Zebra Technologies has developed proximity sensing and contact tracing software using already existing IoT devices to help employers keep workplaces safe while protecting privacy.[16]

Continued investment in broadband and the deployment of 5G and other forms of connectivity throughout the country will be critical to ensure that the economic potential of IoT becomes a reality in the coming years.

14. "IoT in Manufacturing, 2020-2025: Global Markets Dominated by Cisco Systems, General Electric, Intel, IBM, AT&T, Qualcomm, and Siemens," Business Wire (April 3, 2020) *available at* https://www.businesswire.com/news/home/20200403005273/en/IoT-in-Manufacturing-2020-2025-Global-Markets-Dominated-by-Cisco-Systems-General-Electric-Intel-IBM-ATT-Qualcomm-and-Siemens---ResearchAndMarkets-.com
15. GE Healthcare Deploys Remote Data Monitoring Technology to Help Clinicians Support Most Critical COVID-19 Patients across the health system" (April 15, 2020) *available at* https://www.ge.com/news/press-releases/ge-healthcare-deploys-remote-patient-data-monitoring-technology-help-clinicians.
16. "Zebra Technologies Introduces Proximity Sensing, Alerting & Contact Tracing Software for the Enterprise," (June 4, 2020) *available at* https://www.zebra.com/us/en/about-zebra/newsroom/press-releases/2020/zebra-introduces-proximity-sensing.html.

THE DIGITAL DIVIDE

Notwithstanding the investment in broadband and the enormous growth of high-speed internet over the last 25 years, there remains a number of communities where limited private-sector investment, often due to a lack of geographic density, has led to some households and businesses being unable to access a minimum level of broadband service. This divide has been exacerbated by the COVID-19 pandemic, as some communities have not been able to easily shift their schooling, healthcare systems, and business functions online.

According to the FCC, some 18 million Americans still lack broadband internet service, including the one-fifth of Americans that live in rural communities.[17] The FCC has recognized the importance of broadband to rural communities and has stated that it "pursues policies to ensure that consumers in rural areas have access to basic telecommunication services and to encourage the deployment of advanced telecommunication services to rural communities."[18] Recent FCC data also demonstrates the importance of continued investment in broadband: $80 billion worth of network infrastructure investment in 2018 helped increase the number of rural Americans with access to broadband by 47%.[19]

17. Federal Communications Commission 2020 Broadband Deployment Report. Available at https://docs.fcc.gov/public/attachments/FCC-20-50A1.pdf ("FCC 2020 Broadband Report)
18. https://www.fcc.gov/general/rural-access#:~:text=The%20FCC%20pursues%20policies%20to,telecommunication%20services%20to%20rural%20communities.
19. FCC Broadband Report at 2.

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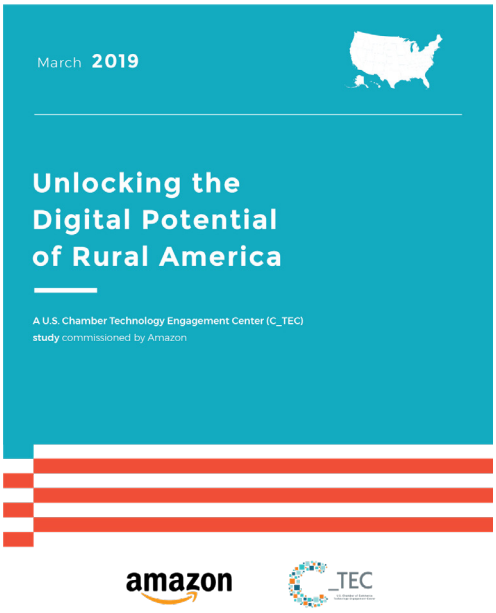

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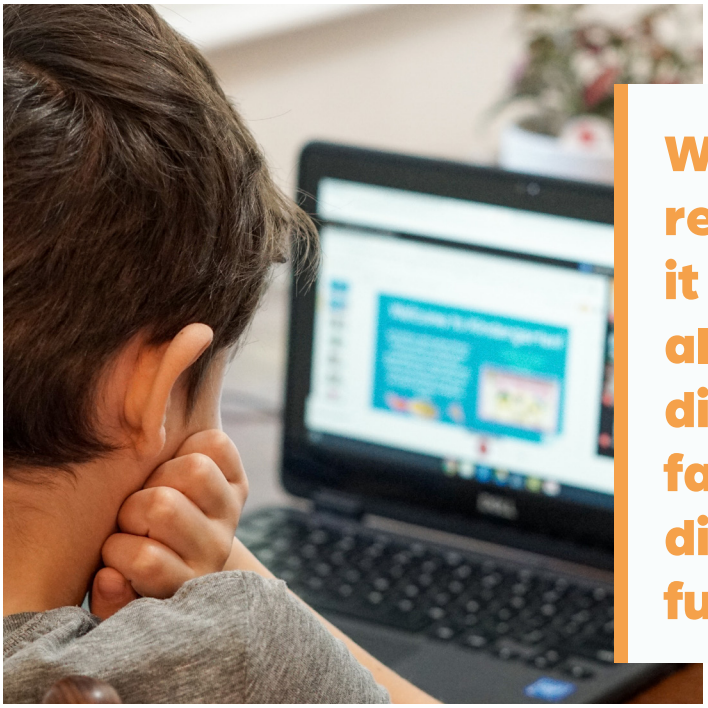
The C_TEC Rural Report showed how internet access and digital tools can provide major economic benefits to rural businesses and communities. Digital tools and technologies helped boosted sales of rural small businesses by almost $70 billion per year. With only less than 45% of rural small businesses having "very good access to digital technology," the potential to increase revenues and hire new workers with better access to technology is significant. In fact, the report found that if rural small businesses could better adopt online tools and technology, they would be able to increase sales by $84.5 billion annually.

It is also worth noting that many younger workers in recent years have migrated from rural areas to larger cities due to a lack of job opportunities. COVID–19 may have slowed some of that migration as more professionals who are able to work remotely choose to live outside of metropolitan areas. Internet access in rural areas will therefore become not just important for local businesses, but also professionals who work remotely and have moved away from cities or suburban areas.



With most students returning to school online, it is fundamentally unfair to allow students who lack the digital tools to connect to fall through the cracks of the digital divide and be in left further behind.

Additionally, the Pew Research Center has found that 44% of households with annual incomes below $30,000 have not adopted home broadband service and instead largely rely on smartphones and cellular service to access the internet.[20] There are also significant racial disparities in access, with 18% of Latino and 11% of Black households lacking computer access.

In the wake of the COVID-19 pandemic, concerns regarding the "learning gap" between those households that have broadband access and those that did not have arisen as school district have maintained distance learning for the start of the 2020-2021 school year. With most students returning to school online, it is fundamentally unfair to allow students who lack the digital tools to connect to fall through the cracks of the digital divide and be in left further behind. Congress must act to provide temporary funding—in a technologically neutral manner—to provide connectivity or service equipment for Americans that currently lack a reliable internet connection.

20. Pew Research Center "Digital divide persists even as lower-income Americans make gains in tech adoption" (May 2019). Available at https://www.pewresearch.org/fact-tank/2019/05/07/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/

GETTING AMERICANS CONNECTED

Communities lack access to broadband primarily due to the lack of population density, particularly in rural areas, which in turn significantly diminishes returns on investment for private carriers.[21] Other communities suffer from issues related to adoption which can result from issues such as affordability for low-income households of devices to connect to the internet and digital literacy.

In order to ensure that all Americans reap the benefits of high-speed broadband, America needs a robust strategy focused on targeted funding, streamlined permitting, and smart regulation. Funding must address barriers to broadband linked to both access and adoption. Congress must adopt a robust national plan to appropriate funding for communities that lack access to broadband.

In order to ensure that all Americans reap the benefits of high-speed broadband, America needs a robust strategy focused on targeted funding, streamlined permitting, and smart regulation.

21. Bret Swanson, "Rural broadband: It's complicated," American Enterprise Institute (August 22, 2018) *available at* https://www.aei.org/technology-and-innovation/telecommunications/rural-broadband-its-complicated/.

A PRIVATE SECTOR-BASED APPROACH TO FUNDING

Private investment in America's broadband networks have enabled the United States to lead the world in network capacity despite the massive shift to online work, school, and commerce.[22] While regulators and network operators in other countries requested that traffic be slowed down to address congestion worries, the FCC's private-investment centered approach helped foster America's network resiliency.[23] Government's should reject public-utility style treatment of the internet and instead encourage a robust private sector which has contributed to America's broadband success story.

Congress should work to maximize private sector participation to bridge the digital divide and avoid government competition. For example, C_TEC encourages Congress and the FCC to avoid financing public communications networks that could compete with the private sector. For example, subsidizing municipal broadband networks can crowd out private investment.[24] On a larger scale, Congress and the Administration should not develop competitors to the private sector such as the creation of a nationalized 5G network.[25]

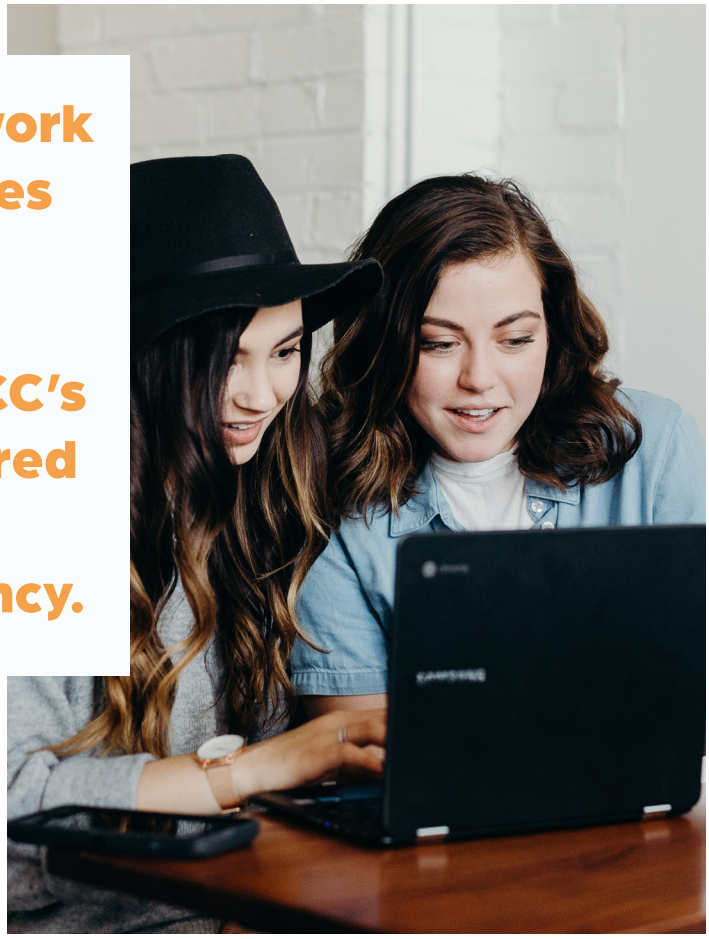
Government's should reject public-utility style treatment of the internet and instead encourage a robust private sector which has contributed to America's broadband success story.

22. Doug Brake, "Lessons from the Pandemic: Broadband Policy After COVID-19," ITIF (July 13, 2020) *available at* https://itif.org/publications/2020/07/13/lessons-pandemic-broadband-policy-after-covid-19.
23. Linda Hardesty, "CenturyLink helps slow OTT and gaming traffic in Europe during Covid-10," Fierce Telecom (April 23, 2020) *available at* https://www.fiercetelecom.com/operators/centurylink-slows-ott-and-gaming-traffic-europe-during-covid.
24. T. Randolph Beard, et al, *The Law and Economics of Municipal Broadband*, 73 Fed. Comm's L. J. (September 9, 2020) *available at* www.fclj.org/wp-content/uploads/2020/09/MunicipalBroadbandArticleFINAL.9.2.20.pdf.
25. Jordan Crenshaw, "Let the Private Sector and Free Market Build the Nationwide Communications Network," *U.S. Chamber Above the Fold* (March 21, 2019) *available at* https://www.uschamber.com/series/above-the-fold/let-the-private-sector-and-free-market-build-the-nationwide-communications.

The Chamber encourages public-private partnerships when appropriate to build out networks. For example, in Southwest Virginia, Bedford County and Comcast partnered together using funding from the Virginia Tobacco Region Revitalization Commission to extend Gigabit Internet Service.[26] AT&T and the City of San Jose, California have worked together in partnership to deploy smart city technology.[27]

Public-private partnerships when addressing high-cost broadband, however, should be narrowly targeted and structured so as to be limited to serving unserved communities, to avoid overbuilding existing broadband networks and to be open for application by a wide-range of broadband providers."

While regulators and network operators in other countries requested that traffic be slowed down to address congestion worries, the FCC's private-investment centered approach helped foster America's network resiliency.



26. "Comcast expanding to 7,000 addresses in SML," Smith Mountain Eagle (June 5, 2019) *available at* http://www.smithmountaineagle.com/news/article_9b261c18-87ab-11e9-9891-3fee6c438c7a.html.
27. "AT&T and City of San Jose Help Close Digital Divide," (May 14, 2019) *available at* https://about.att.com/story/2019/san_jose_smart_cities.html.

ACCESS

Connecting the Unserved

Several programs currently exist to connect Americans living in rural, high-cost areas to high-speed broadband. Currently, the FCC administers the Universal Service Fund which imposes fees that are paid by consumers of telecommunications and uses those funds to support programs directed at high-cost broadband (Connect America Fund), rural telehealth, schools and libraries (E-Rate), and low-income support (Lifeline).[28][29] In order for carriers to be eligible to receive funding, Eligible Telecommunications Carriers ("ETCs") must meet certain requirements under Section 254 of the Communications Act.[30] One of the criticisms of imposing the 25-year old ETC requirements on eligibility is that it reduces the number of providers able to compete for funding.[31] The FCC is scheduled in October 2020 to conduct the Rural Digital Opportunity Fund ("RDOF") Phase I auction to distribute up to $16 billion targeted at 6 million homes.[32] RDOF Phase II, at a date to be determined, will auction up to $4.4B plus any funds not awarded in Phase I for remaining areas.

In addition to the FCC, the United States Department of Agriculture ("USDA") through its Rural Development Office distributes funding for high-cost broadband. USDA Rural Development has been in the process of distributing $600 million in funding through the ReConnect program authorized by the 2018 Farm Bill. While well-intentioned, the RUS broadband programs have experience problematic application requirements that have discouraged a range of broadband providers from participating in the program. These problems need to be addressed to improve the ability of the RUS programs to effectively tackle the remaining broadband gaps.

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28. Zach Christenson, "Municipal Broadband Failure," The American Consumer (September 3, 2014) *available at* https://www.theamericanconsumer.org/2014/09/municipal-broadband-failure/.
29. "Universal Service," Federal Communications Commission *available at* https://www.fcc.gov/general/universal-service.
30. 47 U.S.C. § 254.
31. "A Common Sense Fix to Speed Deployment to Unserved Communities," (July 15, 2020) *availability at* https://www.ncta.com/whats-new/a-common-sense-fix-speed-broadband-deployment-unserved-communities.
32. Auction 904: Rural Digital Opportunity Fund *available at* https://www.fcc.gov/auction/904#:~:text=The%20Phase%20I%20auction%2C%20which,of%20at%20least%2025%20Mbps.

Congress must take affirmative steps to provide funding for broadband in high-cost areas that are unserved. Policymakers have made headway recently calling for dramatic increases in cash for connectivity. President Trump has proposed nearly $1 trillion in infrastructure spending with some going toward rural broadband and 5G while former Vice President Joe Biden has called for $20 billion to fund rural broadband expansion.[33] House and Senate Democrats introduced legislation that would provide $100 billion to address the digital divide.[34] While laudable, Congress must have the necessary information to determine where funding should be directed and target spending at areas that are in greatest need of service first.

MAPPING

One of the major issues confronting Congress and the FCC is that the current maps showing which areas of the country truly have access to high-speed internet are grossly inadequate and require an update. Without accurate mapping, Congress, the FCC, the USDA, and the states are left in the dark to determine which areas of the country are unserved leaving them unable to efficiently target resources in the areas of greatest need. In March 2020, President Trump signed into law the Broadband Deployment Accuracy and Technological Availability Act ("Broadband DATA Act"). This legislation requires the FCC to map connectivity on a granular basis.[35]

Passage of the Broadband DATA Act is a step in the right direction, but Congress needs to provide the Commission with adequate funding to carry out its statutory mapping duties. The FCC is funded by licensing fees and is dependent on Congress to provide additional appropriations for new duties. It has been estimated that the FCC will need $65 million in the first year of mapping which pales in comparison to the benefits of connecting all Americans.

33. Tyler Cooper, "Where Donald Trump and Joe Biden Stand on Key Broadband Issues" (July 24, 2020) *available at* https://broadbandnow.com/report/donald-trump-joe-biden-key-broadband-issues/.
34. H.R. 7302 (2020); S. 4131 (2020).
35. Public Law 116-130 (March 23, 2020).

FUNDING PRINCIPLES

Once the Commission has updated the nation's broadband maps, Congress should aggressively fund permanent access to broadband in high-cost areas. The Chamber supports the following principles to bridging the digital divide in high-cost areas.

1. **Reaching the Unserved:** In the case of providing assistance for high-cost areas where deployment is cost prohibitive, Congress should appropriate funding for truly unserved areas, prohibit duplicative funding, and establish funding programs without existing Section 214 and 254 limitations, such as existing ETC requirements which could slow down deployment. Congress should not expand the Universal Service Fund ("USF") which imposes fees, ultimately paid for by consumers, to fund high-cost broadband deployment.

2. **Technology Neutrality:** Congressional funding for broadband should not favor one type of technology or provider over another and allow the FCC to determine whom is best positioned to provide service. Broadband is currently being deployed through various technological means.

    - Wireline broadband and fiber are the backbone of the current internet ecosystem. For example, in 2018 the cable industry including companies like Charter, Cox, and Comcast supported 3 million jobs and had an economic impact of $450 billion.[36]

    - America's wireless industry which is powering 5G technologies through companies like AT&T, T-Mobile, and Verizon accounted for $475 billion in GDP in 2018.[37]

    - Technology companies like Alphabet, Facebook, and Microsoft are developing new broadband connectivity solutions such as high-altitude stations and using television white spaces.

36. Ben Munson, "NCTA says U.S. cable industry economic impact totaled $450B in 2018" Fierce Video (July 18, 2019) *available at* https://www.fiercevideo.com/cable/ncta-says-u-s-cable-industry-economic-impact-totaled-450b-2018.
37. Accenture Strategy, "Accelerating Future Economic Value from the Wireless Industry" at 4 (2018) *available at* https://www.accenture.com/_acnmedia/PDF-82/Accenture-Strategy-Accelerating-Future-Economic-Value-2018-POV.pdf#zoom=50.

- Satellite companies such as SpaceX have developed low earth orbiting connectivity through projects such as Starlink.

3. **Operational and Capital Expenditures:** Funding should not be limited to solely capital expenditures and should be enabled when appropriate to be used for expenditures such as leasing tower space in addition to capital expenditures.

4. **Speed to Market:** In a COVID-19 environment, speed matters, and funding should be distributed to those who can stand up broadband network quickly while making sure the funding is spent to actually deploy service.

LEARNING GAP PRINCIPLES

Congress should urgently address the Learning Gap, which has been worsened by the COVID-19 pandemic. To prevent the spread of the coronavirus, many state school systems have shut down in-person learning and are instructing virtually. Now students that previously had difficultly completing online homework find themselves behind their peers when it comes to classroom instruction as well.

Many low-income students lack the necessary connectivity to keep up. According to a Pew Research report, "[o]ne-in-four teens in households with an annual income under $30,000 lack access to a computer at home, compared with just 4 percent of households earning over $75,000..."[38] That same report indicated that Hispanic (18% of those surveyed) and Black (11%) homes were more likely to lack computer access. This problem could only get worse as the effects of the pandemic could last well into 2021.

C_TEC recommends the following principles to address bridging the COVID-19 Learning Gap.

38. Brooke Auxier and Monica Anderson, "As Schools close due to the coronavirus, some U.S. students face digital 'homework gap'," Pew Research Fact Tank (March 16, 2020) *available at* https://www.pewresearch.org/fact-tank/2020/03/16/as-schools-close-due-to-the-coronavirus-some-u-s-students-face-a-digital-homework-gap/.

1. **Funding Source:** Like the principles for high-cost broadband deployment, Congress should provide funding through general appropriations and not through the Universal Service Fund.

2. **Program Design:** Currently, the FCC manages the E-Rate program funded by the USF program. E-Rate provides connectivity for schools and libraries. In order to tackle the Learning Gap during COVID-19, Congress should appropriate funding that enables individual students and households to connect online. In order to expedite the process the Commission should not be constrained by current E-Rate rules and be able to borrow from them if appropriate.

3. **Targeted and Temporary:** Individual and household Learning Gap assistance should last for only the duration of the COVID-19 national emergency and be targeted to low-income households without a home broadband connection or those in jeopardy of losing their broadband connection, including related equipment and/or a computer (i.e. a laptop, tablet, or desktop computer).

4. **Technology Neutrality:** Emergency funding should not favor one form of technology for connectivity over another.

5. **Eligibility:** Funding should be limited to 1) connectivity (wired or wireless), 2) service equipment (e.g. modems, routers, hotspots), and 3) devices (e.g. tablets, computers, smartphones).

In order to tackle the Learning Gap during COVID-19, Congress should appropriate funding that enables individual students and households to connect online.

ADOPTION AND KEEPING AMERICANS CONNECTED

Broadband affordability has also come to the forefront during the COVID-19 pandemic as state-imposed lockdowns led to historic unemployment numbers. As the nation began state-by-state quarantines, FCC Chairman Ajit Pai announced the Keep Americans Connected Pledge, a voluntary agreement through June 30, 2020 of the nation's broadband providers to keep households online regardless of an ability to pay.[39] In addition to keeping households connected, America's communications providers stepped up in others ways:[40]

- AT&T provided nurses and physicians with three free months of service and created a $10 million distance learning funding;
- Charter provided a month of free service to help small businesses compete and invested $10 million in minority-owned small businesses; and
- Comcast offered Xfinity Wi-Fi hotspots across the country for free, expanded its Internet Essentials offering to help more low income families get connected, and is working with local partners to provide free Wi-Fi in community centers around the country through its "Lift Zone" initiative.

In order to expand internet adoption for lower income households, the FCC operates its Lifeline program to increase affordability for communications services by providing a discount for subscribers for monthly telephone or broadband internet service.[41] To be eligible for the Lifeline program, consumers must have an income that is at or below 135% of the federal poverty guidelines or participate in certain federal assistance programs.

39. Federal Communications Commission, "Companies Have Gone Above and Beyond the Call to Keep Americans Connected During Pandemic," *available at* https://www.fcc.gov/companies-have-gone-above-and-beyond-call-keep-americans-connected-during-pandemic.
40. C_TEC, "How Tech is Helping the Fight Against Coronavirus," *available at* https://americaninnovators.com/coronavirus/.
41. FCC Lifeline Support for Affordable Communications: https://www.fcc.gov/lifeline-consumers#:~:text=Lifeline%20is%20the%20FCC%27s%20program,affordable%20for%20low%2Dincome%20consumers.&text=The%20discount%20helps%20ensure%20that,%2C%20healthcare%2C%20and%20educational%20resources.

The pandemic demonstrates that Congress should modernize the Lifeline program. To help alleviate disparities caused by COVID-19, Congress should enable targeted and timely assistance appropriated from general funds for low-income households. Congress should resist efforts to codify mandatory connectivity requirements for providers.

PERMIT STREAMLINING

Even with the best intentions and massive funding, broadband and other communications projects cannot break ground and be deployed without a functional and streamlined permitting system. Project developers and their financers need certainty as to whether a project will be approved or denied by various local, state, and federal permitting authorities. At the same time, government agencies should not impose fees not reasonably related to applications costs and maintenance that make the cost of infrastructure projects prohibitive.

WIRELINE PERMITTING REFORMS

The Cable Act, which was enacted in 1984, permits local franchising authorities to franchise cable providers to operate in a city's or county's rights-of-way. In exchange for this franchise to operate, these localities may only charge up to a 5% franchise fee based on a company's cable service revenue.[42]

Many localities historically extracted free services from cable operators that did not count toward the 5% cap. By one estimate, in the absence of government intervention to stop these abuses, the reductions in network improvements due to the increased cost of doing business "could result in consumer welfare losses in excess of $40 billion."[43] An-

42. 47 U.S.C. § 542(b).
43. Johnny Kampis, "Don't Forget About Wireline Deregulation in the Age of 5G," Townhall (April 22, 2019) *available at* https://townhall.com/columnists/johnnykampis/2019/04/22/dont-forget-about-wireline-deregulation-in-the-age-of-5g-n2545146.

other problem is the fact that local governments have attempted to effectively double charge cable companies for using their franchised cable systems to deliver cable and non-cable services, including broadband service, in the rights-of-way, ultimately raising costs to consumers. For example, the City of Eugene, Oregon imposed a 5% cable franchise fee on a cable operator. At the same time, the City also levied an extra telecommunications fee on cable broadband service to operate in the same rights-of-way, even though the provision of broadband did not impose any additional burden on the City.[44]

In 2019, the FCC adopted an order ("2019 Franchising Reform Order") that treats new and legacy cable operators' cable-related, in-kind contributions as counting toward the 5% franchise fee cap. It also barred local and state governmental entities from imposing extra fees on franchised cable systems to operate broadband and other non-cable services in the rights-of-way.[45] The Chamber fully supports these reforms.

The Chamber also makes the following congressional recommendations to make further reforms to franchising and other state and local regulations that place costly burdens on cable operators and other wireline providers and thereby create a drag on new broadband investment and deployment:[46]

- **Cable System Transfers:** State and local franchising authorities use their review of cable and telecom transactions and mergers to impose non merger-specific requirements that are duplicative of federal review, and unnecessarily delay transactions and the implementation of operational plans to improve and upgrade broadband networks. Franchises should be freely transferable if the franchising authority receives notice of the new owner.

44. Joseph Van Eaton, "Oregon Supreme Court: Right of Way Fee Can be Levied on Internet Revenues," (May 27, 2016) *available at* https://www.bbklaw.com/news-events/insights/2016/authored-articles/05/oregon-supreme-court-right-of-way-fee-can-be-levie.
45. Third Report and Order, *In the Matter of Implementation Section 621(a) of the Cable Communications Policy Act of 1984 as Amended by the Cable Television Consumer Protection and Competition At of 1992* (July 11, 2019) *available at* https://docs.fcc.gov/public/attachments/DOC-358439A1.pdf.
46. See Chamber Cable Permitting Reform Recommendations *available at* https://americaninnovators.com/wp-content/uploads/2020/06/CTEC_onepager_Cable_v3.pdf.

- **Cable Franchise Terms and Termination:** Some franchising authorities attempt to keep cable franchise terms short, so that they can extract new conditions upon the franchise's renewal. With each franchise renewal—an effort that can take months or even years—the cable operator often must not only meet all the obligations of the existing franchise, but also agree to new demands. Cable franchises should remain in place without need for renewal until terminated. To avoid attempts by franchising authorities to terminate a franchise to extract a new franchise agreement, termination should be allowed only under prescribed circumstances.

- **Notification of Road Changes:** When providers are unaware of changes in the grade of driving surfaces or the construction of new driving surfaces, outages and tear downs of providers' facilities on poles can result, costing providers unnecessary time and money to repair facilities and bring services back online. States and localities should be required to timely notify providers of road changes that potentially affect their overhead wires.

- **Public-Utility Pole Attachment, Rates, Terms and Conditions:** A provider's entry, upgrades, and on-going service operations may be unreasonably delayed or affected if a publicly owned utility (*i.e.*, municipal, cooperative, or other type of non-investor owned utility) demands excessive and unjustifiable attachment rates and terms, such as unreasonable access standards, excessive fees or pole replacement attachment costs, or treating overlashing as a new attachment subject to permitting requirements. A reasonable standardized rental rate formula should apply to publicly owned utilities as it does to investor-owned utilities, and terms of access and allocation of costs should be required to be fair and reasonable.

- **Shot Clocks on Requests for Access:** Providers' plans to build, extend or upgrade their networks are frequently frustrated by franchising authorities' delays in connection with permitting processes for the installation of necessary equipment. In the most egregious cases, franchising authorities have delayed the issuance of necessary permits for several years. To keep broadband deployment moving, franchising authorities should be required to act on applications within a reasonable period.

WIRELESS PERMITTING REFORMS

5G is what its name implies—it is the fifth generation of mobile communications networks. 5G technology will increase data transfer speeds and enable networks to carry more data with decreased lag times. In order to achieve maximum performance, in addition to usage of large cell towers, 5G will also rely upon small cells, many of which are the size of a pizza box or hockey puck, to be deployed more densely in certain areas than traditional large cell towers.[47] As described earlier in this paper, 5G has the potential to be a game changer for IoT and smart cities.

5G HAS THE POTENTIAL TO BE A *GAME CHANGER* FOR IOT AND SMART CITIES.

Akin to the wireline context, many localities are currently charging wireless providers fees designed for traditional large cell towers. While these fees may generate short-term revenue for localities, they work to deprive a municipality's citizens of the economic and technological benefits of 5G and small cells because they inhibit deployment. Since 5G will require densification of networks and the installation of many smaller wireless facilities on more location than traditional cell service, it can be cost prohibitive to deployment equipment if fees are too high. According to one FCC filing, localities are charging thousands of dollars per pole to site small cell equipment.[48]

47. While small cells are a new and important area of focus for 5G densification, macro tower facilities will continue to play a critical role in providing the coverage layer for 5G network infrastructure, especially in rural areas. Over the past two decades the FCC has taken numerous bi-partisan actions to help streamline wireless macro tower siting issues and resolve roadblocks to wireless infrastructure deployment. [CITE 2001 NPA, 2005, NPA, 2014 Infrastructure Order, 2020 NPA, etc.]. The FCC's approach for macro towers has furthered the collocation model, which in turn has sped deployment of communications networks, increased competition among wireless services providers, and significantly contributed to the United States winning the race to 4G. Though there are still some macro tower siting issues to be resolved, the FCC has consistently shown that a bi-partisan, balanced approach to resolving communications permitting issues is possible.
48. Petition for Declaratory Ruling, *In the Matter of Promoting Broadband for All Americans by Prohibiting Excessive Charges for Access to Public Rights of Way* (November 15, 2018) *available at* https://ecfsapi.fcc.gov/file/122306218885/mobilitie.pdf.

In 2018, the FCC, led by Commissioner Brendan Carr, issued an order ("2018 Wireless Broadband Order") that imposed shot clocks on localities regarding applications to site small cells. The Commission also preempted state, county, and city governments from charging fees to site small cells on public rights of way that are not reasonably related to costs associated with applications and maintenance.[49] In August 2020, the Ninth Circuit of the Unite States Court of Appeals largely upheld the order.

In addition to FCC continuing to implement the 2018 Wireless Broadband Order, Congress should provide permanent permitting relief for wireless infrastructure. The Chamber urges passage of legislation like S.1699, the "STREAMLINE Small Cell Deployment Act," that imposes shot clocks and deemed granting of permits if no action is made by a locality for small cell equipment.

GENERAL FEDERAL PERMITTING REFORM

FAST-41

In addition to communications-specific siting issues, Congress must also address and modernize the federal permitting process. In December 2015, Congress passed the "Fixing America's Surface Transportation Act (FAST Act)" with Title 41 ("FAST-41) of the Act establishing an independent, interagency council of agencies with infrastructure permitting responsibilities to act as an impartial adviser to project sponsors. Fast-41's steering council helps expedite and coordinate project review and permitting for covered broadband projects that are over $200 million and many other critical infrastructure projects subject to multiple agency environmental review. FAST-41 does not determine the outcome of a permitting decision but is designed to bring certainty to permitting timelines. [1] Unfortunately, FAST-41 and its steering council were authorized for only 7 years, creating uncertainty for the projects currently on the steering council's dashboard concerning future support. The Chamber supports its reauthorization to help build our infrastructure of tomorrow.[2]

49. Declaratory Ruling and Third Report and Order, *In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment* (September 26, 2018) *available at* https://docs.fcc.gov/public/attachments/FCC-18-133A1.pdf.

NEPA Reform

The National Environmental Policy Act ("NEPA") was signed into law in 1970 to establish procedures for the federal government to consider the environmental and human impacts of a range of federal actions associated with federal funding, permits, facilities, equipment, and policies. Since the time NEPA regulations were first issued four decades ago however, securing a NEPA permit from a federal agency has become hampered by unreasonable costs and long project delays.

It now takes 4.5 years on average to get a NEPA permit for a major infrastructure project with transportation project permits taking almost 7 years on average.[50] Part of the reason for this lengthy delay is due to a tsunami of litigation brought by special interest groups who have taken advantage of NEPA's outdated procedural requirements. These special interest groups consistently oppose projects in a coordinated effort, which has contributed to project delays and investor uncertainty.

The Chamber is supportive of recent efforts by the Council on Environmental Quality to update NEPA's procedural processes. These updates to NEPA would help reduce delays with a 2-year presumption time limit for NEPA review of complex projects, increase agency coordination when more than one agency is involved, and enhance public input from states, localities, and tribes.

50. Environmental Impact Statement Timelines (2010–2018), Council on Environmental Quality (June 12, 2020). https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2020-6-12.pdf

Policymakers should adopt a "first, do no harm" approach and recognize that smart, not more, regulation is the right approach to further expanding broadband and high-speed internet access throughout the country.

SMART REGULATION

Before imposing new regulations on market participants within the internet ecosystem, policymakers should examine existing frameworks to determine their applicability in solving current issues. Since the 1990's, the regulatory framework governing the internet and broadband expansion has been largely bipartisan and encouraged investment. This has contributed to roughly $1.7 trillion of (mostly private sector) investment that has expanded high-speed internet to broad swaths of the country and helped promote economic growth and job creation. Policymakers should adopt a "first, do no harm" approach and recognize that smart, not more, regulation is the right approach to further expanding broadband and high-speed internet access throughout the country.

A MODERN REGULATORY FRAMEWORK FOR THE INTERNET

Policymakers should embrace net neutrality principles but avoid treating the internet as if it were a public utility. Regulatory structures such as Title II of the 1934 Communications Act are inappropriate for regulating the internet and would only inhibit private investment.

- Regulating the internet like a public utility—using a 1930s era law—has real world consequences. The most damaging consequence: less investment in the broadband necessary to deliver high-speed internet to more homes, schools, and businesses across the United States. All over the country, communities saw a decrease in broadband investment after the FCC issued a rule in 2015 that designated broadband as a "telecommunication service" under Title II.[51] By 2017, when it became clear that new leadership at the FCC would repeal the 2015 rule, broadband investment sharply increased, going from $60.4 billion in 2016 to $68.8 billion in 2017.[52] The FCC and Congress can still embrace principles regarding net neutrality but should reject any further attempts to treat the internet as a public utility. The private-sector led investment has enabled the nation to weather network changes during the COVID-19 pandemic.

51. 80 Fed. Reg. 19738 (Apr. 13, 2015).
52. See "Broadband Capital Investment Increased Significantly from 2016 to 2017," Free State Foundation (May 15, 2018) available at http://freestatefoundation.blogspot.com/2018/05/broadband-capital-investmentincreased_15.html.

APPLYING ECONOMICS IN FCC RULEMAKINGS

On January 30, 2018, the FCC voted to create the Office of Economics & Analytics ("OEA"). C_TEC strongly recommends that the OEA be maintained from administration to administration. It is vitally important that the Commission consider data and real-world economic impacts of its decisions. The Chamber long advocated for passage of the Regulatory Accountability Act ("RAA") which required agencies to consider cost and benefits in the case of high-impact rulemakings. Additionally, the RAA would have required agencies to provide enhanced transparency about the justifications for rulemakings. C_TEC recommends that the FCC consider these principles when considering high-impact rules like the 2015 Open Internet Order that reduced private investment in the order of billions of dollars.

SPECTRUM POLICY

The federal government must develop a comprehensive, unified, national spectrum management strategy to reduce the scarcity of spectrum and enhance the availability and flexibility in licensing and allocating licensed spectrum, while supporting international free trade agreements and access to international markets. Such a strategy should rely on market forces to determine the most efficient and effective uses for commercial spectrum, at the same time providing for other uses of spectrum in the public interest.

INTERNET OF THINGS

Congress should pass S. 1611 Developing Innovation and Growing the Internet of Things ("DIGIT") Act sponsored by Senators Deb Fischer (R-NE), Brian Schatz (D-HI), Cory Gardner (R-CO) and Cory Booker (D-NJ). The DIGIT Act would further develop policies to promote growth of Internet of Things (IoT) technology.

The staggering growth of IoT technologies is likely to continue and even accelerate in the wake of the COVID-19 pandemic. The DIGIT Act would establish a public-private working group, convened by the Secretary of Commerce, to identify existing regulations that be inhibiting the IoT and how the federal government can further promote IoT growth. The Chamber has also been supportive of legislation such as the State of Modern Application, Research, and Trends of IoT ("SMART IoT") Act.

CONCLUSION

The expansion of connectivity and providing Americans access to a 21st century communications network has been a long-held bipartisan goal. The smart policies that were put in place nearly three decades ago have led to an incredible boom in broadband investment and helped keep the internet free of unwarranted government intrusion. Policymakers on both sides of the aisle should continue to follow this model in order to close the ongoing digital divide in America. C_TEC will continue to be a proactive partner with Congress and Federal agencies to address this critical issue and advocate for targeted funding, permit streamlining, and smart regulation.

C_TEC STAFF

TOM QUAADMAN

Executive Vice President, *C_TEC*

JORDAN CRENSHAW

Executive Director and Policy Counsel, *C_TEC*

MATT FURLOW

Director, Policy, *C_TEC*

DIYA LI

Director, Communications, *C_TEC*

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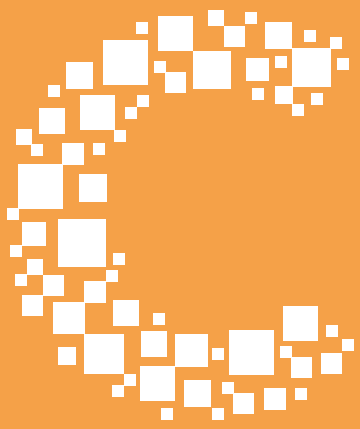

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U.S. Chamber of Commerce
Technology Engagement Center

AMERICANINNOVATORS.COM

@USCHAMBERTECH

CTEC@USCHAMBER.COM