Insight

# The Internet of Things Requires A Backbone of Strong Broadband

JENNIFER HUDDLESTON | JULY 17, 2020

**Executive Summary**

- The pandemic has proven the strength of America's broadband networks, although current capacity may not be enough to meet future demand.
- Emerging technologies such as the Internet of Things (IoT) will require these networks to continue to be strengthened to meet increasing demands.
- Policymakers should build on existing policies that have yielded a strong network and also look for opportunities to remove barriers that may prevent innovation and investment in broadband deployment.

## Introduction

The internet has withstood perhaps its greatest stress test. With much of society moved online over the last several months, networks have largely proven up to the task of handling this unprecedented demand. The result has been, according to at least one survey, that Americans have a renewed appreciation for technology and the internet.

The success of the internet is perhaps an indicator of the coming demands associated with an increasing number of connected devices. From autonomous vehicles and smart home devices to video conferencing and virtual reality offices, the development and use of emerging technologies will require continued innovation and strength from broadband networks and other internet connectivity options so that society can fully embrace the benefits of these technologies.

## Emerging Technologies Will Require Strong Networks

The Internet of Things (IoT) is a broad term describing any number of everyday devices that can be connected to the internet to send or receive information. Many have now experienced IoT in the form of smart speakers such as Amazon Echo or Google Home, or wearable devices such as Apple Watches or Fitbits, but there is far more potential for this emerging technology.

In 2019, a Deloitte study found that the average American household has 11 connected devices. This number is only expected to grow as more IoT devices and other emerging technologies become common in homes, workplaces, and cars. This growing number of devices will need to rely on solid network infrastructure, and these devices will likely place more demand on networks than the current infrastructure can reliably handle . To ensure that consumers can reliably enjoy the benefits of IoT, improvements and innovation to allow networks to better handle this increased demand, such as 5G, will also be needed.

Beyond the growing number of connected devices, other emerging technologies will also need a solid backbone of high-speed and reliable connectivity. These technologies include developments in augmented reality (AR) and virtual reality (VR) that have a wide range of applications, from new ways to collaborate in the workplace from afar, providing new interactions and experiences in otherwise isolated times, and even improving medical training.

Many other emerging technologies, including autonomous vehicles, artificial intelligence, and blockchain, will need bandwidth on strong networks to reach their potential. Maximizing the benefits of these technologies will also require strengthening network capabilities.

**The Current Strength of Networks in the United States**

The United States has a strong foundation of broadband networks. During the pandemic demands on networks increased by as much as 35 percent, but the networks have remained reliable. Unlike in Europe, American networks have not had to engage in practices such as downgrading entertainment streaming video quality. The ability of American networks to better meet the increased demand is due to a combination of newer infrastructure as well as policy. As Libertas Institute policy analyst James Czerniawski noted, "The United States' willingness to allow for the investment in infrastructure has afforded these companies the opportunity to be ready for crisis moments like this without compromising quality, unlike its European counterpart."

Both public and private actors have taken actions during the pandemic to strengthen networks beyond this crisis. Actions by the Federal Communications Commission (FCC) and private companies during the COVID-19 pandemic have continued progress toward 5G and also accelerated broadband deployment, particularly in rural areas, by making more spectrum available.

To maintain this strong network and further the success of the network, the overall policy environment must continue to embrace a light-touch approach. This approach minimizes regulatory interventions into the deployment and development of technology, preventing unnecessary burdens. As a result, innovators and entrepreneurs are able to build products and systems that can meet and exceed the current demands.

**Policy Next Steps for an IoT-Ready Network**

While the existing internet infrastructure in the United States is strong, there are policies that can build on these strengths as demands on networks continue to increase. Such policies can continue an environment that encourages investment and innovation and eliminate barriers that prevent such actions.

To continue this success, policymakers need to retain the innovation friendly environment that currently encourages investment in broadband. This means considering not only policies such as increasing available spectrum but also avoiding unnecessary regulations that might burden deployment. Policymakers should consider the burdens and unintended consequences cumbersome approval processes and layered regulations may have on those entities seeking to increase broadband deployment. Additionally, a greater regulatory burden regarding the operation of an internet service provider such as the return of Title II "Net Neutrality" regulations or increased privacy regulations could result in innovators looking at other areas with fewer barriers.

The FCC has focused on opening up more spectrum to enable companies to continue deploying 5G and to encourage the best use of spectrum. Such policies include providing incentives for currently underutilized spectrum to be reallocated in a timely manner, such as with the upcoming C-Band auction. Beyond what is

already being done by the FCC, policymakers should consider accounting for spectrum resources currently held by federal agencies to incentivize their best usage. For example, congressional proposals have suggested either requiring agencies to include spectrum market value in their financial statements or regular reports on the value of spectrum held by each government agency.

Beyond accounting for the value of spectrum, policymakers at the state and federal level can look to remove barriers to deployment and create greater efficiency. For example, the R Street Institute's annual Broadband Scorecard shows the state-level barriers to deployment or operation, from zoning and construction permits to franchising fees. Policymakers can examine these existing barriers and improve the regulatory environment by cutting fees and paperwork associated with deployment or passing laws that enable deployment of broadband or fiber during other infrastructure projects. For example, "dig once" laws would allow broadband infrastructure to be laid at the same time as other road construction projects, lowering costs and lessening disruptions.

Policy solutions should not presume a one-size-fits-all solution when it comes to further improving connectivity. Various factors at the local level may bring different costs for deployment or operation of broadband. Policymakers should also consider where options other than traditional broadband may provide better solutions and ensure that policies enable consumers and local leaders to select the options that best serve their needs.

**Conclusion**

The internet's ability to withstand the increased demands during the pandemic has vindicated the U.S. policy approach, which encourages investment and innovation. Looking ahead, exciting innovations such as the Internet of Things, driverless cars, and AR and VR will increase the demand on networks. Policymakers should build on the existing policy framework to further support a strong backbone that will not only improve our existing connectivity but open up a wide array of exciting possibilities.