July 17, 2015

The Honorable Greg Walden
U.S. House of Representatives
2185 Rayburn House Office Building
Washington, DC 20515

The Honorable Anna Eshoo
U.S. House of Representatives
241 Cannon House Office Building
Washington, DC 20515

Dear Chairman Walden and Ranking Member Eshoo:

The Telecommunications Industry Association (TIA), the leading trade association for global manufacturers, vendors, and suppliers of information and communications technology (ICT), applauds you for holding a hearing on "Promoting Broadband Infrastructure Investment." As you consider this important topic, we urge you to focus on the following areas during the hearing:

In the five years since the adoption of National Broadband Plan, significant investment has taken place. The average connection speed for the U.S. as a whole in the second quarter of 2010 was 4.6 Mbps. Fast forward to 2014 – the U.S. has an average connection speed at 11.9 Mbps.[1] Not only is faster broadband more available than was previously the case, but users also have more competitive broadband alternatives to choose from:

- 95% of housing units have one wired broadband provider available;
- 99% have at least one wireless broadband provider; and
- 88% have at least two wired broadband options to choose from.[2]

Perhaps the most significant change regarding broadband in the past half-decade has been the dramatic increase in America's use of mobile broadband connectivity. This is most visible with the rapid growth of smartphone adoption. These devices are essentially handheld computers integrated with a mobile telephone, allowing consumers to use them in much the same manner as their home computers. With smartphones replacing feature phones, the growth in the smartphone universe is straining available wireless spectrum.

In 2012, for the first time, wireless subscribers spent more on data than they did on voice. Spending on data rose by a third in 2012, and during the next four years, it will increase by 94%. TIA projects that the overall wireless market–including voice and data services, wireless handsets, wireless infrastructure equipment, and services in support of the wireless infrastructure– will expand at a 7.6 percent compound annual rate, reaching an estimated $364.5 billion in 2016 from $272.3 billion in 2012. Innovation and growth have also gone well beyond the smartphones. Demand for bandwidth consuming devices such as netbooks and tablets are skyrocketing.[3]

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[1] See, Akamai, The State of the Internet; Q1 2015 Reporthttps://www.akamai.com/us/en/our-thinking/state-of-the-internet-report/index.jsp (last accessed July 17, 2015)

[2] *See,* NTIA, National Broadband Map, Year-End 2013.

[3] This data is derived from the TIA 2015 ICT Market Review & Forecast, a proprietary annual publication from TIA containing distilled data and analysis on information and communications technology industry trends and market forecasts through the end of 2018. This document is available for purchase at http://www.tiaonline.org/resources/market-forecast.

Continued investment in next-generation broadband networks promises major advances in education, healthcare, teleworking, e-commerce, public safety, and security. These capabilities are equipping users with the tools that are necessary to compete in the 21st century, making them far more productive, increasing their standards of living, and enhancing economic and physical security.

Even the definition of what actually constitutes broadband is becoming increasingly complex. The Federal Communications Commission effectively "raised the bar" earlier this year.[4] However, the practical broadband standard remains much lower for many applications.

Based on a number of metrics, broadband subscription rates lag availability, as many potential users do not regard the value proposition of broadband as sufficient to justify its cost. Unquestionably, broadband subscription remains only one multiple expenditure of time and income that is competing for consumer attention.

TIA anticipates that potential users are likely to be prepared to contract for a variety of broadband speeds and capacities that are tied specifically to the particular applications they value. For example, mobile broadband users clearly prefer the convenience of not being tethered to a fixed connection over speed. Email, and even video streaming, may not be sufficient to encourage consumers to adopt the FCC's new preferred broadband standard.

Yet, in the near-term future, TIA anticipates that the distinction between "Mobile" and "Fixed" will become less clear as more traffic moves to "Heterogeneous Networks."[5] These HetNets will blur the distinction between Mobile and Fixed, further obscuring broadband performance metrics. Quite unlike the experience of universal phone service in which users either had voice service or they did not, universal broadband and universal broadband speeds involve less clear-cut metrics.

TIA appreciates your continuing efforts on "Promoting Broadband Infrastructure Investment." Public policy can make a significant contribution to encouraging, as well as discouraging, continued investment at the pace experienced in recent years. TIA thanks you again, and we look forward to working with you on these important issues. For more information, please contact Mark Uncapher at 703-907-7733 or by email at muncapher@tiaonline.org.

Very best regards,

Scott Belcher
Chief Executive Officer
Telecommunications Industry Association

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[4]   See, Federal Communications Commission, *2015 BROADBAND PROGRESS REPORT* AND NOTICE OF INQUIRY (Rel. *February 4, 2015)*

[5] "Heterogeneous Networks" refers to wireless networks using different access technologies. For example, a wireless network which provides a service through a wireless LAN and is able to maintain the service when switching to a cellular network. see Archi Delphinanto; Ben Hillen; Igor Passchier; Bas van Schoonhoven; Frank den Hartog (January 2009). "Remote Discovery and Management of End-User Devices in Heterogeneous Private Networks". 6th IEEE Consumer Communications and Networking Conference (CCNC 2009).

TIA Recommendations for Promoting Broadband

TIA regards broadband deployment as but one component of an overall "ecosystem" – combining connectivity with applications. Through economic and regulatory incentives for network deployments and upgrades, the U.S. Government can create investment in next-generation broadband infrastructure.

1. **"User subscription" Should Not be the Only Business Model to Pay for Broadband Connectivity**

TIA anticipates that applications will drive user demand for higher broadband speeds. As a corollary to this, the value users attach to specific broadband "rates" will be linked to specific application and services. To address this, it should be possible to link necessary connectivity requirements to the user's service.

"Just-in-time broadband capacity" could offer many consumers more value by giving reluctant adopters more flexibility and encouraging more adoption. As a result, users would be assured of not having to pay for more connectivity than necessary.

Examples of such potentially bundled connectivity services include:

- healthcare remote monitoring;
- advanced video streaming;
- video conferencing, such as for educational applications; and
- applications associated with the Internet of Things (IoT), such a remote sensors.

"Zero" & "Low" rating marketing strategies can make broadband more affordable by bundling the cost of connectivity with another service. TIA cautions that the Federal Communications Commission's Open Internet[6] order presents barriers to this approach. TIA encourages policymakers to be flexible in allowing competitive pricing alternatives in the marketplace. This approach provides a gateway to encourage investment in more robust broadband offerings.

2. **Support Broadband Ecosystem Applications**

As discussed above, given the widespread availability of broadband, further adoption depends upon compelling applications. Examples exist in:

o **Education**

The U.S. must continue to connect students and library users to the benefits of more robust broadband by increasing technological flexibility for E-Rate program participants, coupled with

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[6]   *See,* Federal Communications Commission, REPORT AND ORDER ON REMAND, DECLARATORY RULING, AND ORDER, Protecting and Promoting the Open Internet, GN Docket No. 14-28 (Adopted February 26, 2015, Rel. March 12, 2015)

greater incentives for efficient and economical investment decisions. However, local jurisdictions also have a responsibility to transition student materials, such as textbooks, to electronic devices.

o **Healthcare**

The U.S. health care system is harnessing advances in ICT products and services to extend the delivery of care beyond the walls of the hospital and the doctor's office. Government policies must promote the role of ICTs in advancing healthcare, particularly the harnessing of patient-generated health data from remote monitoring devices and services which improve the quality of care for Americans while reducing costs for patients.

o **Public Safety Communications**

ICT products and services are critical enablers in saving lives. A nationwide public safety broadband network is the critical enabler by ensuring that first responders and other public safety professionals have reliable access anywhere to cutting-edge technologies for mission-critical applications.

TIA supports the rapid adoption of "next-generation technology" into public safety communications networks, including the adoption of a sustainable FirstNet business model that provides for the necessary investment, beyond the initial funding under the Spectrum Act, needed to build, maintain, and upgrade the nationwide interoperable public safety broadband network.

o **Transportation Systems**

Pro-innovation and pro-competition policies will promote the societal and economic benefits of an advanced intelligent transportation system (ITS) ecosystem. Innovation and market competition must drive our nation's policy framework in order to enable the U.S. to lead the world in ITS technology. Voluntary, industry-led standardization can accelerate adoption and enable a cost-effective introduction of new ITS technologies, while providing a clearer technology evolution path that stimulates investment.

3. **Enhancing Global Cybersecurity**

Efforts to improve cybersecurity in critical infrastructure protection are critical to addressing current and emerging threats in a context of risk management. A global supply chain can best be secured through a risk management approach by promoting industry-driven adoption of international best practices and global standards.

Working together, government and industry must leverage a partnership framework to increase the effectiveness of dialogue between industry and government (domestic and foreign) experts to discuss international standards and best practices. Internationally accepted best practices relevant to the products at issue should be utilized as important considerations when developing cybersecurity risk management and protection policies.

4. **Avoiding a Spectrum Crunch through more Availability**

As discussed above, mobile broadband traffic has been increasing at a dramatic pace. Global mobile data traffic increased 81 percent in 2013, and is expected to rise 11-fold over the next five

years.[7] More spectrum is needed to keep pace with this exploding demand. The U.S. needs to make an additional 500 MHz of spectrum available for broadband use by 2020. The FCC has made a strong start by opening 5 GHz, AWS-3, and H block spectrum and is making progress on 600 MHz, 3.5 GHz, and an additional 5 GHz spectrum, but more must be done.

Innovative, next-generation broadband wireless devices, applications, and services require spectrum availability for both fixed and mobile broadband use; this can be achieved through further reallocations of federal spectrum, flexible regulations, improved spectrum management among users, and rapid implementation of voluntary incentive auctions. In view of mobile broadband dynamic growth and long-term needs, further efforts must continue to identify additional spectrum for availability in the next decade and beyond. Budgetary incentives and a long-term plan that supports predictability for both commercial and government uses will encourage more efficient use of this valuable resource.

5. <u>Support for Research & Development</u>

U.S. ICT research remains significantly underfunded. While the ICT industry accounts for $1 trillion of U.S. GDP – seven percent of the economy – federal research spending on ICT accounts for less than two percent of all federal R&D spending. Strategic and robust U.S. investment in telecommunications research, including a permanent R&D tax credit, multi-year federal research plans, immigration reform, and education in science, technology, engineering, and mathematics (STEM), will enable the U.S. to remain a technology industry leader.

The U.S. government must make long-term communications research a priority, and funds need to be directed to key areas: spectrum sharing; universal broadband; interoperable mobility; and homeland security related fields including interoperability, security, survivability, and encryption.

6. <u>Flexibility to Address Accessibility</u>

ICT products continue to positively transform the lives of those with disabilities. The ICT industry continues to work closely with the disability community to improve access to the technologies of today, while looking ahead to the products of the future. Increasing accessibility to technology for those with disabilities can be achieved through collaboration among stakeholders, policies that reflect technological neutrality and feasibility principles, and the usage of voluntary consensus-based standards.

Government should support pro-competitive policies that encourage marketplace solutions and rapid deployment of accessible technologies. There should be an emphasis on solutions which are technically feasible, with a focus on people-centric or scenario-based designs that are outcome-focused (as opposed to feature/function focused). Supported policies should include

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[7] See, Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update 2014–2019 White Paper, (rel. February 3. 2015, available at http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html (last accessed July 17, 2015)

the allowance of voluntary, consensus-based standards as safe harbors for compliance with regulations when appropriate, and the use of blanket waivers for classes of nascent products.

When developing any accessibility policies, the government must ensure that the required technologies are technically feasible and provide sufficient time for industry to come into compliance.

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