Before the
Subcommittee on Communications and Technology
United States House of Representatives

Hearing on
"Facilitating the 21st Century Wireless Economy"

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Summary of Key Points

- Ericsson is playing a key role in the evolution of innovation as an empowerment tool. Our vision is one of a networked society where everyone and everything is connected, sharing information in real time, and reaching their full potential.
- The broadband ecosystem is made possible by access to sufficient spectrum, something that remains in very short supply and even higher demand.
- To truly understand the extent of that demand, Ericsson performs in-depth data traffic measurements in mobile networks from the world's largest installed base of live networks.
- From our vantage as a leader in building networks, we believe there are a few key points to keep in mind as we identify new sources of spectrum.
    1. Technology cannot satiate the demand for capacity alone;
    2. Clearing spectrum for licensed use remains the best option available today;
    3. Federal spectrum holdings continue to be an excellent potential source of spectrum;
    4. Barriers to broadband infrastructure deployment remain and must be removed where possible.
- There is no limit to the potential of emerging technologies such as 5G and the Internet of Things.
- The MOBILE NOW Act is comprehensive legislation that anticipates and promotes the rise of 5G technology.
- The MOBILE NOW Act sets policy goals for access to spectrum and eases the burdens we see in the field every day when we deploy network infrastructure.

Written Testimony of Jared Carlson, Ericsson Inc.

Thank you Chairman Blackburn and good morning to all of the members of the committee.

My name is Jared Carlson and I lead Ericsson's legislative, regulatory, and industry efforts for our six-billion-dollar North American business. It's an honor to be here today and I appreciate the great strides this subcommittee continues to make on behalf of our nation's communications infrastructure. Together we share the common mission to increase efficiency, improve user experience, and open new doors to opportunity. Ericsson is a proud partner in your work and is playing a key role in the evolution of innovation as an empowerment tool. Our vision is one of a networked society where everyone and everything is connected, sharing information in real time, and reaching their full potential.

Our solutions – which range from mobile broadband to cloud services to network design, optimization, and management – serve customers across the globe in 180 countries. 40% of the world's mobile traffic continues to be carried over Ericsson networks. And at the heart everything we do is innovation. We employ tens of thousands of team members and invest billions of dollars every year in research and development. That investment has led to over 42,000 patents and key discoveries. In one of our labs back in the 1990s, the peer-to-peer wireless technology known as Bluetooth was invented. Today, Ericsson continues to be an integral part of the broadband ecosystem, which is made possible by access to sufficient spectrum, something that remains in very short supply and even higher demand.

To truly understand the extent of that demand, Ericsson performs in-depth data traffic measurements in mobile networks from the world's largest installed base of live networks. These measurements have been collected from all regions of the world since the early days of mobile broadband and are captured in the 'Ericsson Mobility Report,' which is issued several times a year.

Our most recent iteration of this report, issued just a few weeks ago, yielded some very interesting trends that I would like to share:

- Total mobile data traffic is expected to rise at an annual growth rate of 45 percent, resulting in an eight-fold increase by the end of 2022;
- Smartphone traffic will grow ten times and will account for roughly 90% of mobile data traffic by the end of 2022;
- Globally, mobile data traffic grew 55 percent year-over-year in 2016;
- North America has the highest monthly data usage per active smartphone at 5.1 GB today and will reach 25 GB/month in 2021;
- Mobile video traffic – led by YouTube – remains the largest contributor to traffic volumes, and will grow 50 percent annually through 2022, when it will account for 75% of all mobile data traffic;
- Over 90% of the world's population will be covered by mobile broadband networks by 2022;
- The number of commercial LTE networks continue to increase with 457 networks now in 170 countries;

- 166 operators have commercially launched LTE-A networks in 76 countries. 85 percent are Cat 6 networks which enable network speeds up to 300 Mbps;
- LTE networks and devices supporting downlink data speeds of up to 1 Gbps are now commercially available and market launches are expected in the coming months;
- There are now more than 80 commercial VoLTE networks in approximately 50 countries;
- The first commercial rollouts of 3GPP standardized Enhanced Voice Services (EVS) have recently started in Asia, North America and Europe;
- There are now more than 40 commercial networks supporting native Wi-Fi calling in more than 25 countries; and finally
- The total number of mobile subscriptions now numbers 7.5 billion, with 132 million new subscriptions added during the last quarter of 2016.

All of these metrics continue to lead us to a central question: where can more spectrum be found? From our vantage as a leader in building networks, we believe there are a few key points to keep in mind as we answer that question:

1. Technology cannot satiate the demand for capacity alone;
2. Clearing spectrum for licensed use remains the best option available today;
3. Federal spectrum holdings continue to be an excellent potential source of spectrum; and
4. Barriers to broadband infrastructure deployment remain and must be removed where possible.

The trends identified in the 'Ericsson Mobility Report' also underscore an important idea about the future of our industry – there is no limit to the potential of emerging technologies. Take 5G for example. In that space, Ericsson is proud to offer the world's first commercial 5G New Radio for massive MIMO and multi-user MIMO. This technology will allow customers to make the most of what spectrum they have by enhancing network capacity and coverage while reducing interference. We are also working with operators and industry partners to tap into the $582 billion dollars of global 5G opportunity that will come in the next five years. Interest in launching pre-standard 5G networks has increased so dramatically that many deployments have already been announced in several markets.

Or consider 'The Internet of Things.' We believe there will be roughly 29 billion connected devices by 2022, 18 billion of which will be related to IoT. These include connected cars, machines, meters, wearables, and other consumer electronics. So we are working with our customers to avoid network congestion by managing, monitoring, and analyzing these devices in real time. How we do that in a way that ensures efficiency, and more importantly safety and privacy, will remain a key question as the wireless broadband ecosystem continues to evolve.

And that's where Congress can continue to help. Today's hearing is titled 'Facilitating the 21st Century Wireless Economy' for good reason. Chairman Blackburn, you and the members of this committee have done just that over the last several years. The 'Middle Class Tax Relief and Job Creation Act of 2012' paved the way for the auction

of critical spectrum in the broadcast, AWS-3, and H-Block bands. And now, Congress has another opportunity to act again with the MOBILE NOW Act.

The MOBILE NOW Act is comprehensive legislation that anticipates and promotes the rise of 5G technology. It sets policy goals for spectrum access and eases the burdens we see in the field every day when we deploy network infrastructure. It calls for the critical spectrum needed – 500 MHz by 2020 – for commercial use by easing the demands on our networks as consumers and IOT devices access more data-rich services.

In addition, the bill delivers an important analysis by the FCC and NTIA on spectrum access at 3 GHz and in the millimeter wave frequencies, bands ideally suited for 5G services because of their high bandwidth and shorter propagation qualities.

Finally, through provisions such as 'Dig Once' and the creation of a database which identifies federal properties that can be used for the installation of telecommunications equipment, the MOBILE NOW Act reduces many of the costly and time-consuming aspects of wireless infrastructure deployment. I know this is a goal championed by you, Chairman Walden, Representative Eshoo, and many others on this committee.

Looking ahead, the work remains challenging, but incredibly exciting too. And I am privileged to work in an industry that is constantly adapting and evolving, but also transforming. Transforming how people and things are connected. Transforming the

ways we tackle our most complex issues. Transforming the efficiency of schools, cities, and businesses. But most of all, transforming lives for the better.

Thank you again Chairman Blackburn for the invitation to be here today and I look forward to answering any questions the subcommittee has.