

**REMARKS OF FCC CHAIRMAN AJIT PAI
AT “BROADBAND FOR ALL” SEMINAR**

STOCKHOLM, SWEDEN

JUNE 26, 2017

It’s great to be in Sweden for the first time. And I have a confession to make. When I was a child, I liked Bjorn Borg more than John McEnroe. For those who are too young to remember, Borg versus McEnroe was the Messi versus Ronaldo of late 1970s/early 1980s sports debates. I don’t know why, but I always preferred the stoic Swede to the badboy American. But please don’t tell anyone. I can’t have this news getting back to the States.

And as long as I’m making confessions, I have a second one to share that’s related to Sweden. I’m an ABBA fan. And I’m also known back in the United States for working popular culture references into my speeches. So, fair warning: You might hear a few ABBA references this morning. For example, I’m honored that you decided to “Take a Chance on Me” by inviting me to speak.

The theme of this seminar—Broadband for All—couldn’t be more timely or important. That becomes clear if you study the findings from Ericsson’s recently released Mobility Report. Its topline number on global connectivity was that 3.2 billion people—out of 7.2 billion worldwide—subscribe to mobile broadband. So for all the progress we’ve seen, the majority of the world’s population still does not subscribe. And according to recent reports, most people in the world have no home *or* mobile Internet access.

Now, you can look at that number and think, “Wow, about 4 billion people around the globe are still offline. That’s a huge challenge.” But like many Americans, I’m an optimist at heart. I like to think about the opportunities that number represents. And another statistic in the Ericsson report is a big reason why. Consider this. Every day across the world, we add more than 1 million new mobile broadband subscribers. I repeat: more than 1 million new subscribers *every* day.

Stop and think for a moment about all the ways that your life is better because of access to the Internet. Now ponder the million-plus experiencing that for the first time *every single day*. Think about how much better their lives will be thanks to those new connections and how much we are strengthened collectively as they contribute their talents to our globally connected economy. And to top it all off, Ericsson projects that we will maintain this 1-million-a-day pace through 2022. That’s a lot to be hopeful about, and some useful perspective as we begin this two-day discussion.

The United States is ahead of the global curve when it comes to delivering “broadband for all.” But we too face challenges.

First, a quick snapshot: 93% of Americans have access to fixed broadband with a speed of at least 25 Mbps down. An estimated 73% of Americans subscribe to fixed broadband at home. And approximately 80% of Americans use smartphones.

When you dig deeper into those numbers, however, you begin to see some real divides. In urban areas, 98% of Americans have access to high-speed fixed service. In rural areas, it’s only 72%. 93% of Americans earning more than \$75,000 have home broadband service, compared to only 53% of those making less than \$30,000. Too many identify with the lines in One of Us, in which ABBA sang: “One of us is lonely / One of us is only / Waiting for a call.”

And this has real impact. Each percentage point on the wrong side of what we call the “digital divide” represents hundreds of thousands of personal stories—stories of those left behind in struggling small towns or hurting low-income urban neighborhoods as their neighbors move elsewhere seeking digital opportunity. Stories of rural hospitals diverting critical patients to hospitals much farther away,

because they don't have the connectivity to transmit CT scans to specialists. Stories of people who can't get a job because they can't access online job applications. Stories in which being connected and not being connected can be the difference between life and death.

This last one is not hypothetical. Just a few weeks ago, I visited the north central part of the United States. I drove over 1,600 miles, making 18 stops across five states to learn first-hand about the connectivity challenges facing many rural communities. On a visit to the Rosebud Sioux Indian Reservation, I learned about a woman who was found dead in her home, clutching her cellphone. She had dialed for help 38 times—but never got a response because there was no wireless coverage.

Since my first day as Chairman of the FCC, I've said repeatedly that my number one priority is closing the digital divide and bringing the benefits of the Internet age to all Americans.

The FCC's founding statute charges my agency with making communications services, "available, so far as possible, to all the people of the United States." Communications for all—which in 2017 means Broadband for All—is the main reason my agency exists.

That's what the law says. But here's what I believe: Every American who wants to participate in our digital economy should be able to do so. Access to online opportunity shouldn't depend on who you are or where you're from.

I'm pleased to say that since my first days as Chairman, the FCC has taken significant actions to make that a reality.

My first vote as Chairman, in January, was to partner with the state government of New York to deliver \$170 million for broadband deployment in unserved areas of the state that houses our nation's financial capital.

In February, at the first FCC meeting for which I could set the agenda, we adopted two significant measures to expand broadband access in unserved areas.

One was an order to bring mobile broadband to millions of Americans through what is known as Mobility Fund Phase II. Previously, the FCC was spending about \$25 million a month of taxpayer money to subsidize wireless carriers in areas where private capital had already been spent to build out networks. We are redirecting that spending and more—\$4.53 billion over the next decade—in order to bring 4G LTE service to rural Americans who don't have it today. And we're doing it in an efficient, fiscally responsible way by using a competitive reverse auction to allocate these funds to private providers.

At the same meeting, we voted to move forward with \$2 billion in fixed broadband investment through Phase II of our Connect America Fund. Here too, we set up a competitive bidding process to bring high-speed Internet access to more rural Americans without access today. We are encouraging wide participation, from wireless Internet service providers to electric utilities.

These capital investments will bring Internet access to many Americans stuck in the analog era. And they will put many Americans to work building next-generation networks in rural America. But these initiatives are just the beginning.

Because while we need public-private partnerships to spur network deployment in areas where the economic incentives for private investment don't exist, the most important thing that we can do to expand digital opportunity is to create a regulatory environment that incentivizes companies to build and expand high-speed networks on their own.

Remember: networks don't have to be built. Risks don't have to be taken. Capital doesn't have to be spent in the communications sector. And the more difficult government makes the business case for deployment, the less likely it is that broadband providers big and small will invest the billions of dollars needed to connect consumers. After all, building networks isn't cheap. It takes Money, Money, Money.

And too often, unnecessary rules make it more expensive to construct these networks than it needs to be. They delay deployment. And they discourage companies from risking capital.

That's why we've proposed to eliminate regulatory barriers to building wireline infrastructure. Our goal is to lower the cost and speed of deployment and to speed up the transition from copper lines to modern fiber networks. This means more money will be spent building the resilient networks of tomorrow, not maintaining the fading networks of yesterday.

We're also seeking to enable the 5G wireless networks of the future by making it easier to install hundreds of thousands of small cells today. I'll come back to this topic later.

And beyond these more targeted initiatives, we've proposed to end the heavy-handed, public-utility Internet regulations that were imposed in the United States two years ago under the prior Administration. From the Clinton Administration in the 1990s until 2015, we took a market-based approach to the Internet. That approach was spectacularly successful. It produced a free and open Internet. It yielded approximately \$1.5 trillion in private investment in broadband networks. It created an online economy that gave birth to the world's most successful Internet companies. And it empowered hundreds of millions of American consumers.

I opposed our decision two years ago to heavily regulate the Internet. There was simply no good reason for doing so. And the evidence now suggests that the FCC made a mistake. You might even call it our Waterloo.

Our new approach injected uncertainty into the broadband market. And uncertainty is the enemy of growth. After the FCC embraced utility-style regulation, the United States experienced the first-ever decline in broadband investment outside of a recession. In fact, broadband investment remains lower today than it was when the FCC embraced utility-style regulation in 2015.

Among our nation's 12 largest Internet service providers, domestic broadband capital expenditures decreased by 5.6% or \$3.6 billion, between 2014 and 2016. We've received letters from dozens of small Internet service providers explaining how the new rules have "significantly increased compliance burdens and regulatory risk through heavy-handed regulation that is rife with uncertainty." Twenty-two of the nation's smallest broadband providers report that they have "slowed, if not halted, the development and deployment of innovative new offerings." And 19 non-profit municipal broadband providers—that is, government-owned broadband providers, often championed by advocates of public-utility regulation—observe that "[f]or the past two years, the substantial costs of the 2015 decision have harmed our businesses." I visited one of those government-run providers for myself in the small town of Laurens, Iowa. "Nothing good" was the frank assessment of what these rules meant for them.

Under this tough framework, the FCC also began targeting innovative service options, including an investigation into "zero-rating" or "free-data" plans. One carrier offered a plan that exempted music from its data limits. Plans like this gave consumers more choices and boosted competition in our wireless market. And even though the FCC had problems with these plans, the American people had a different reaction: Thank You For The Music. It turns out that free data was popular. Who would've guessed?

In light of these developments, we've proposed to restore the decades-long, cross-party consensus on light-touch Internet regulation. Our goal is to have both a free and open Internet and rules that maximize investment in next-generation networks. Right now, we're getting public input on our proposal. After that, we'll decide how to move forward based on the facts, the law, and sound economics.

In the meantime, we're not standing still in our efforts to expand digital opportunity. Just last week, in fact, there were two major developments in our work to deliver broadband for all Americans—particularly rural Americans.

The first is drawn from the skies. Much of the United States is remote and/or sparsely populated. We're going to have to think creatively about how to bring broadband connectivity to these places. Last

Thursday, we did just that. We agreed to allow a company named OneWeb to use a planned constellation of 720 satellites in low-Earth orbit to provide high-speed broadband in hard-to-serve areas. Other satellite companies would like to do the same. We hope this combination of innovative technology and competition will benefit American consumers.

The second is President Trump's announcement last Wednesday that rural broadband will feature in the infrastructure proposals he will soon unveil. Closing the digital divide needs to be a national priority, and the President's decision to include rural broadband affirms that it is. At the FCC, we stand ready to do whatever we can to help implement this proposal.

Speaking of national priorities, let's talk 5G. This is a topic of widespread interest in the United States. This month alone, I've heard it discussed firsthand from the White House to the Black Hills of South Dakota. To put it in ABBA-related terms, when it comes to our wireless future, it seems like 5G is The Name of the Game.

5G promises exponential growth in the Internet of Things. It could let mobile broadband consumers download 4K movies in seconds. It could enable cooperative collision avoidance for cars and remote robotic surgery. It could bring the full power of virtual and augmented reality into reality. It could mean smart homes, smart energy grids, smart transportation, smart water systems, smart cities, and all the other smart things we've been hearing about for years. And those are just the things we can already foresee. What we cannot imagine today may transform society tomorrow.

There is much 5G development going on in the United States. All of our major wireless carriers and equipment vendors are already conducting or plan to conduct 5G trials. And Ericsson's Mobility Report pegs North America as the early leader in 5G deployment, predicting a quarter of all mobile subscriptions will be on 5G by 2022.

But the 5G future does not call to mind ABBA's hit *The Winner Takes It All*. No, the good news with 5G is that we can all come out ahead. Wireless innovation should help every nation, and 5G applications should help every consumer.

At the FCC, we are working hard to match the private sector's energy for 5G.

This work starts with our proven, simple formula for spectrum policy. This formula has two parts.

Part one is continually working to make spectrum available for commercial wireless services. As wireless data traffic continues to skyrocket, we must stay a step ahead on the spectrum front. And part two is flexible use. We basically make spectrum available and then do our best to stay out of the way of technological development and the details of implementation. In fact, thanks to flexible use, any of the existing spectrum bands available for commercial wireless service could be used for 5G today, if the technology were available. Nobody has to beg the FCC for permission.

Beyond these two guiding principles, the best way to characterize our spectrum policy is actually an old Swedish word: *smörgåsbord*. We aim to free up all kinds of spectrum—low-, mid-, and high-band—for both licensed and unlicensed use. We are convinced that this approach allows mobile innovators and consumers alike to feast.

We've recently taken notable steps on all three fronts.

On low-band spectrum, we recently concluded the world's first incentive auction. This two-sided auction will reallocate 84 MHz—70 licensed and 14 unlicensed—in the 600 MHz band from television broadcasters to wireless providers. This month, we issued the first licenses to auction winners. One major operator plans to begin deploying service this year, with a path to 5G.

On mid-band spectrum, we adopted new sharing tools in the 3.5 GHz band to take 150 MHz of spectrum traditionally used for military radars and non-federal fixed satellite service and make it available for mobile broadband.

Of course, when it comes to 5G, the real action has been with high-band spectrum. Sticking to our core principles, we've identified substantial spectrum in millimeter-wave bands for new services. And we are assuring flexibility to allow the market to determine the highest value use. We have opened up nearly 11 GHz of spectrum in the bands above 24 GHz for mobile use. This gives operators a clear path to launching 5G and other innovative millimeter-wave services in the United States. Moreover, we designated different portions of these bands for licensed services and unlicensed devices. We recognize that there is a synergy between the two that makes possible new applications, including the Internet of Things.

Moreover, we are currently considering whether to open up even more spectrum in the millimeter-wave bands for 5G and other uses, including spectrum above 95 GHz.

Looking abroad, I'm pleased that discussions have begun on finding opportunities for international harmonization. I'm sure we will have such talks this week, as we begin to prepare for WRC-19. On that note, I would add that we remain committed to the 28 GHz band, which has been a source of debate at home and abroad, even though it was not included for study at the WRC.

Now, spectrum alone won't bring 5G to life. In addition, we'll need massive investments in physical infrastructure. As we move from 4G to 5G, network architecture will shift from large, macro-cell towers to densely-deployed small cells, operating at lower power. In the United States, we contemplate hundreds of thousands, if not millions, of small cells. And those cells are going to need backhaul, which means many more miles of fiber and other connections to carry all this traffic.

From a regulatory standpoint, that's a lot of approvals that will have to be given—and a lot of possibilities for delay and higher costs.

Earlier, I mentioned that the FCC has proposed to make it easier to deploy wireless infrastructure. I'll briefly elaborate. We are examining how state and local government processes can affect the speed and cost of infrastructure deployment. And we're exploring reforms to those processes. For instance, if state or local government doesn't act on a siting application within a reasonable period of time, should that application be "deemed granted" by the FCC?

We are also examining the FCC's own regulations and asking how we can minimize costs and delays.

The bottom line is this: Rules that were designed for 100-foot towers might not make sense for small cells that you can hold in your hands. And we don't want governments to channel the grim reaper in Ingmar Bergman's 1957 all-time classic *The Seventh Seal*, decreeing "Nothing escapes me. No one escapes me."

One more note. When thinking about the infrastructure needed for 5G, regulators also must recognize something many people often don't: Innovation isn't limited to the so-called "edge" of networks. Innovation *within* networks is also critical, especially in the mobile space. To realize the 5G future, we need smart infrastructure, not dumb pipes. Dumb pipes won't bring us smart cities. We need to make sure our rules recognize this reality.

* * *

I'll close with this. One of the greatest kings in Swedish history was Gustav II Adolf, popularly known in the United States as Gustavus Adolphus. At his coronation 400 years ago this October, the King is said to have adopted the motto *Cum Deo Et Victricibus Armis*: "With God and victorious weapons." At the FCC, we do not lay claim to that kind of holy backing. But we do think that with

weapons like modernized rules and a focus on innovation and investment, we can deliver a marketplace that will leave consumers victorious.

Thank you for inviting me. I look forward to working with you over the next two days and beyond to realize the potential of the digital age for billions around the world.