



TESTIMONY OF JONATHAN SPALTER

CHAIR, MOBILE FUTURE

on

"AN EXAMINATION OF COMPETITION IN THE WIRELESS MARKET"

before the

**Subcommittee on Antitrust, Competition Policy and Consumer Rights
Committee on the Judiciary**

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Chairwoman Klobuchar, Ranking Member Lee and members of the subcommittee, thank you for this opportunity to testify on behalf of Mobile Future and its members. Thank you also for your leadership in holding this hearing on the state of wireless competition at such a critical time. With the FCC now considering rules to govern upcoming spectrum auctions, this is an important moment for mobile innovation and the millions of American consumers and businesses that value and rely on strong and fast wireless connectivity.

My name is Jonathan Spalter, and I am the Chair of Mobile Future, which represents innovators across the wireless ecosystem – from application developers to mobile service providers to companies that create and build the tools that wirelessly connect our devices – as well as a range of non-profit organizations that depend on them. We are united in our commitment to advancing policies that encourage the profound mobile investment and innovation we see all around us today.

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Summary

At Mobile Future, we are very focused on how we as a nation can ensure that innovators and entrepreneurs have the opportunity and constructive policy environment they need to invest in, develop and deploy new services, applications and technologies and continue to leverage world-class infrastructure as they grow our economy and advance U.S. wireless leadership globally. It is also critical that American citizens reap the benefits of this innovation.

We've come a long way since the first cellular call was made 40 years ago. Our mobile future is indeed bright, although – equally true – it is fragile. While today's mobile story is one

of tremendous success and promise, there are real capacity issues on the horizon – specifically regarding the availability of spectrum needed to expand the mobile Internet. The time is now for policies that make additional spectrum resources available, so we are able to advance the mobile future from a place of abundance versus a defensive crouch of scarcity.

Innovators know that in our wireless world, consumers are very much in the driver’s seat. The market dynamic in this sector moves so quickly that established players that hesitate to innovate and invest often face the harsh consequences of creative destruction, powered by the choices – and the wisdom – of American consumers.

The trend toward mobility is inescapable. Increasingly, it will be our mobile devices – not our PCs – that will be the primary entry point to the Internet for most Americans by 2015. Already today, more than one-third of adult cell phone users go online mostly using their mobile devices.¹ Indeed PC shipments last year plunged by nearly 10%.² That’s their deepest annual dive on record. The world of Internet technologies continues to change rapidly, and those companies and institutions that fail to keep pace suffer for it.

This is one key reason why there has been so much investment – historic levels – in U.S. mobile networks, making U.S. service providers global leaders. The nation’s leading wireless providers have invested hundreds of billions of dollars to keep their networks competitive with one another – and state-of-the art for American consumers and businesses. Last year alone, U.S. wireless carriers invested more than \$34 billion in their networks, accounting for 24% of

¹ Pew Research, Mobile Technology Fact Sheet, 12/27/2013.

² “Global PC Shipments Fell 10% Last Year, Gartner and IDC Say,” *Wall Street Journal*, 1/9/2014.

the world networks, accounting for 24% o.³ That is more investment than in any other industrial sector. As a result, over half of the world's 4G LTE subscribers are here in the U.S. despite our nation having only 5% of the world's wireless subscribers.⁴ And, over 97% of the world's smartphones sold last year run on operating systems developed by U.S. companies – a giant leap in market share from less than 25% just four years ago.⁵

Is the past prologue? That depends on the continued appetite of consumers – the vision and capacity of mobile innovators – and wise decisions by our nation's policymakers.

To date, the U.S. government has relied substantially on restraint, simplicity and economy when it comes to regulatory and legislative engagement. And, in no small measure because of this approach, our nation's vibrant mobile ecosystem is the envy of the world.

In fast-moving technology development circles, we have a popular concept known as MVP, "minimal viable product." It's the notion that, from an engineering and design perspective, companies should ship products that have simple and minimally engineered attributes, so that their customers can be directly engaged in the ongoing evolution and improvement of products. The thinking is that consumers – not our engineers – create the most effective feedback loop that allows a company's product to reach its full potential.

³ See Didier Scemama, et al., *2014 wireless capex: BRICs & Europe to pick up the slack*, Bank of America Merrill Lynch, Global Telecom Equipment, Jan. 13, 2014, at Table 2. See also Glen Campbell, *2014: The year ahead*, Bank of America Merrill Lynch, Global Wireless Matrix 4Q13, Jan. 8, 2014, at Tables 1 and 2.

⁴ *Id.* (citing Informa Telecoms & Media Group's World Cellular Information System (WCIS)).

⁵ Remarks of FCC Chairman Julius Genachowski at Vox Media Headquarters, *Winning the Global Bandwidth Race: Opportunities and Challenges for the U.S. Broadband Economy*, 9/25/2012; Gartner, "Gartner Says Annual Smartphone Sales Surpassed Sales of Feature Phones for the First Time in 2013," 2/13/14.

This principle has its policy corollary: Time and again, it is American consumers and their decisions in the marketplace, not overwrought government regulations and mandates, which have guided mobile innovation to its globally competitive greatness today.

Our job is to help safeguard this consumer-driven innovation and investment that have allowed the mobile ecosystem to deliver so much progress to our nation. In doing so, we lay the groundwork for a bright mobile future for our country.

How do we do this?

The virtuous cycle of investment in the mobile ecosystem – from networks, to handsets and tablets, to applications – provides an unparalleled foundation for U.S. innovation. First and foremost, we need to ensure our nation’s consumers, innovators and businesses can count on having the wireless spectrum and advanced networks required – now and in the future – to support these powerful and promising new applications.

And, mobile enterprises need the regulatory restraint, certainty and speed that are essential to support the massive private capital investment needed to keep the nation’s wireless infrastructure sufficiently strong and scalable to keep pace with fast-rising demand.

The core task for the government is to provide a predictable regulatory framework that promotes access to mobile broadband spectrum for all operators and the consumers they serve by: (1) providing a known pipeline of licensed spectrum available through auction in the coming years; (2) repurposing additional spectrum from government to commercial use; (3) facilitating, not second guessing, secondary market transactions to allow providers to optimize their spectrum holdings; and (4) encouraging in parallel longer-term research and development in complementary spectrum sharing, efficiency and optimization technologies.

Our World is Going Wireless

Wireless connectivity is increasingly a central part of our everyday lives – from how we work and learn, to how we stay connected to friends and family, to our professional lives and our personal health. Overall, wireless innovation supports approximately 3.8 million American jobs and contributes nearly \$200 billion to the economy.⁶ Our nation was the first to reach a significant mobile milestone: Since 2012, a majority of Americans are now smartphone owners.⁷ And the average U.S. mobile user today spends 127 minutes per day using the mobile applications on his or her smartphone.⁸

Overall, wireless innovation is transforming each facet of our daily lives from healthcare, education and energy to public safety and civic engagement. Smart grids, mobile health devices and digital textbooks allow us to re-imagine entire sectors of the economy and civil society – with improved efficiencies and exciting opportunities. In parallel, the Internet of Things – with machine-to-machine connectivity – is enabling our homes, cars and devices to talk directly to us and to each other, streamlining our lives and opening doors to even more potential opportunities.

Perhaps nowhere is the untapped potential of mobile innovation more apparent than in the progress wireless is making possible in the ongoing digital health revolution that is transforming American medicine. The growing sophistication and ubiquity of smartphones and tablets – among both patients and caregivers – is helping close the gap between urban and

⁶ The Wireless Industry: The Essential Engine of US Economic Growth, Roger Entner, 5/2012.

⁷ Nielsen as cited in “Smartphone owners now a majority of US mobile market, a multicultural feast for advertisers,” *The Verge*, 5/7/2012.

⁸ “Flurry Five Year-Report: It’s an App World. The Web Just Lives in It,” *Flurry Blog*, 4/3/2013.

rural quality of care and making possible timely, cost-effective treatment of common ailments – such as sore throats and sinus infections – from the convenience of home or the office.

A piece on Minnesota Public Radio⁹ documented the experience of Dr. Douglas Smith, a family physician in Plymouth, MN. Dr. Smith serves as the Chief Medical Officer of Consult A Doctor, a network of more than 300 physicians available for routine medical consultations via phone or videoconference. “The mobile revolution has changed how this can be delivered,” Smith said. “The idea that you can get an almost crystal clear image of someone’s rash when they’re sitting up at their cabin and you’re sitting up at your cabin—and you can make a medical diagnosis based on that—is a revolution.”

And, the importance of mobile connections extend beyond person-to-person interaction.

Already, in the United States there are more wireless subscriptions than people. But this is only the beginning of what the mobile future holds. It is expected that as many as 50 billion devices will be connected to the Internet globally by 2020,¹⁰ accounting for nearly \$1.9 trillion in economic value.¹¹ One of the greatest opportunities before us is to find the right path – and the appropriate policy framework – to ensure America can continue to lead – and succeed – in this fresh wave of innovation, as we have in the past.

Last year alone, global mobile data traffic grew 81%. To put the demand curve in context here in this country, Cisco reports that in 2013, 4G networks generated 14.5 times the

⁹ “Telemedicine gives rural doctors immediate access to help,” MPR News, 8/22/2012.

¹⁰ Cisco Visual Networking Index Global Mobile Data Traffic Forecast Update, 2/5/14. Morgan Stanley estimates the number will be higher – 75 billion devices. See, Morgan Stanley: 75 Billion Devices Will Be Connected To The Internet Of Things By 2020,” *Business Insider*, 10/2/13.

¹¹ “Gartner Says Personal Worlds and the Internet of Everything Are Colliding to Create New Markets,” *Gartner*, 11/11/2013.

data traffic of non-4G networks.¹² And yet, today, 4G accounts for less than 3% of all mobile connections. So facilitating this growth is a significant challenge that requires “all hands on deck.”

Competitive Dynamic Defines Mobile Ecosystem

One defining characteristic of the mobile ecosystem in the U.S. is the intense and ever evolving competitive dynamic.

In its most recent wireless competition report, released almost one year ago, the FCC found that nine out of ten U.S. consumers now have at least three options, and four out of five U.S. consumers have at least four options when choosing a wireless broadband service provider.¹³ And, competition among service providers has never been more intense. In fact, according to Nielsen, the wireless industry spent \$2.75 billion in advertising in 2012, further demonstrating the fierce competition between carriers to earn subscribers.¹⁴ Companies are spending billions to deploy next-generation 4G LTE networks to provide high-quality service to ever more discriminating customers, making America the worldwide leader in the deployment of the next generation of mobile networks.

With insatiable consumer demand for all things mobile, the market continues to evolve in unexpected ways. More than ever before, wireless consumers today enjoy countless choices at virtually every level of the mobile experience. For example, services like calling, texting and video conferencing – once the sole purview of traditional wireless providers – are now available at no charge via a wide array of new mobile apps and services. Last year alone, an estimated

¹² Cisco Visual Networking Index Global Mobile Data Traffic Forecast Update, 2/5/14.

¹³ 16th Mobile Competition Report, FCC, 3/21/2013.

¹⁴ “Nielsen Tops of 2012: Advertising,” *Nielsen Newswire*, 12/17/2012.

102 billion applications were downloaded and a predicted 139 billion will be downloaded this year.¹⁵

We're seeing big changes on the carrier front, as well. Sprint has been acquired by Softbank and has secured control of Clearwire, giving it access to substantial financial resources and abundant spectrum holdings. T-Mobile and MetroPCS have merged. Verizon Wireless and AT&T have swapped some spectrum to make more efficient use of existing capacity. More recently, T-Mobile struck a deal to purchase 23 lower 700 MHz A Block licenses from Verizon Wireless in exchange for \$2.365 billion and T-Mobile's AWS and PCS licenses in Los Angeles, San Francisco, Dallas, Atlanta, Detroit as well as other markets. The deal will provide T-Mobile with 12 megahertz of 700 MHz spectrum "in geographic areas with an aggregate population of approximately 150 million people... [] ... Following these transactions, ... T-Mobile will hold low-band 700 MHz licenses in 9 of the top 10 and 21 of the top 30 markets in the U.S...."¹⁶ Using T-Mobile's population estimates, this translates into 1.8 billion MHz/POPs. DISH Network acquired 40 MHz of spectrum in the 2 GHz band from operators DBSD North America, Inc. and TerreStar Networks, Inc.¹⁷

The expanding choice of service provider is only one of many decisions that empower our nation's mobile consumers. Price, quality and composition of service plan span an ever-widening gamut of consumer preferences – and hardly all come from "the usual suspects." Consumers today can look to retailers, such as Best Buy and Wal-Mart, to shop for phones and plans. T-Mobile has announced several initiatives aimed at disrupting traditional mobile

¹⁵ "Gartner: 102B App Store Downloads Globally In 2013, \$26B In Sales, 17% From In-App Purchases," *TechCrunch*, 9/19/2013.

¹⁶ *Id.*, Ex. 1 p. 5.

¹⁷ "Dish Network acquires DBSD, TerreStar Networks assets," *The Denver Post*, 3/12/13.

service, for example – uncoupling device costs from service costs, offering unlimited texting and 2G data in 100 countries, and offering to pay up to \$350 in early termination fees for customers who switch to their service. AT&T has since run a month-long promotion offering T-Mobile customers up to \$450 in credit to switch to AT&T.¹⁸ Also, Verizon recently launched the “MORE Everything Plan,” offering more data, cloud storage, and international access to consumers at reduced fees.¹⁹ Finally, Sprint has launched a “Framily” plan, under which friends and family can share customizable family plans and be separately billed.²⁰ Who benefits from the competitive jostling? Consumers.

Thanks to evolving consumer expectations in a highly competitive market, service providers of all sizes now allow customers to add devices and/or family members to their plans for a fraction of the monthly fee.

In the meantime, new consumer options including prepaid service came to market more than 10 years ago through Mobile Virtual Network Operators (“MVNOs”) including Boost, Tracfone and Virgin. One – Straight Talk Wireless – even touts in its television ads that because it doesn’t invest in infrastructure, it can offer “the same great nationwide coverage for half the cost.”

All of this intensive competition fuels new choices for consumers. In its most recent competition report from 2013, the FCC found that more than one in five mobile users now choose no-contract services. And, pricing options continue to multiply as new providers – from Ting to FreedomPop, Solavei to Karma – offer even more new approaches to incentives, service

¹⁸ “AT&T ends \$450 promotion aimed at wooing T-Mobile customers, cuts Aio prices,” *FierceWireless*, 2/4/14.

¹⁹ “Verizon’s More Everything plan takes on T-Mobile with increased data, unlimited international messaging from the US,” *endgadget*, 2/13/14.

²⁰ “Sprint’s new ‘Framily Plans’ offers big savings,” *CNET*, 1/7/14.

plans, and cost structures while prices for wireless consumers continue to decline.²¹ Sprint recently announced that its prepaid brand Boost Mobile is launching a promotion that cuts the price of LTE service down to \$35/month for the first six months for unlimited voice, texting and unlimited data, with the rate going to \$50/month after that.²² AT&T's prepaid brand Aio introduced a new \$40/month plan that includes unlimited voice, texting and data, and a new \$50/month plan that supports more high-speed data.²³

Competition also extends to the 266 wireless handsets now being sold in the U.S. market by 23 different manufacturers – nearly three times the number of device makers in our market just six years ago.²⁴ Those devices run on multiple different operating systems, and consumers can choose from more than 1 million applications for their iOS devices and 675,000 for Android devices.²⁵

And more changes and rivalries lie ahead. Just last week, Facebook announced the company will purchase mobile messaging service What's App for as much as \$19 billion. All of this genuine renaissance in mobile innovation powerfully drives home the point that it is sheer folly, as this subcommittee well understands, for policy to try and predict future market architecture.

The acknowledgement by our government of what is well understood by America's consumers – that competition throughout our nation's mobile ecosystem is real, relentless and

²¹ 16th Mobile Competition Report, FCC, 3/21/2013.

²² "Sprint launches Boost Mobile LTE promotion, cuts price to \$35/month from \$55/month," *FierceWireless*, 2/2/14.

²³ "AT&T ends \$450 promotion aimed at wooing T-Mobile customers, cuts Aio prices," *FierceWireless*, 2/4/14.

²⁴ 16th Mobile Competition Report, FCC, 3/21/2013.

²⁵ *Id.*

rapidly evolving – must be an important foundation of common understanding for virtually all innovation policy.

Recognizing the spectrum challenges ahead for all Americans is equally critical. With more advanced networks carrying exponentially growing traffic from data-hungry devices, U.S. wireless networks are already running close to peak capacity and well above the global average. Achieving the goals set forth by President Obama’s Wireless Innovation and Infrastructure Initiative therefore must remain a key and enduring priority for our government.

A Forward-Looking Regulatory Approach

I commend this Subcommittee for its focus on the upcoming spectrum auctions. Chairwoman Klobuchar and Senator Schumer were among those making efforts to convey spectrum to support an interoperable public safety network for first responders, and Senator Schumer has spoken in favor of broad auction participation to promote auction receipts that will fund FirstNet. Ranking Member Lee has aptly noted that imposing auction participation limits would be akin to subsidizing smaller wireless companies. Designing and executing open and successful spectrum auctions will help ensure that market forces – and the consumer demand that drives them – remain a primary focus of these auction proceedings.

Time is of the essence in terms of government adopting a timely, sure-footed, consistent and tech-forward stance. Here, too, Congress has shown great leadership with the Middle Class Tax Relief and Job Creation Act of 2012 and related efforts like the Federal Spectrum Incentive Act to help unlock additional spectrum for commercial use.

Some, however, have suggested that the government should restrict access in future spectrum auctions or set artificial caps, restrictions or set-asides for particular competitors.

Such “thumb-on-the-scale” policies have proven unwise in the past and would harm competition by benefitting only certain companies at the expense of tens of millions of mobile consumers who have chosen one of the leading national carriers as their service provider of choice. If specific carriers are singled-out and excluded from or limited in their auction participation, it would potentially harm the mobile ecosystem and almost certainly impede the success of the auction process itself. Doing so also would adversely impact the many tens of millions of Americans who have chosen to subscribe to their services, substituting regulators’ judgment about market choices for that of American consumers. The impact would likely be measured by fewer auction participants, fewer spectrum resources for American consumers and less revenue for the Treasury. The national interest dictates, therefore, that the FCC should design and conduct an open auction that allows all providers to pursue the capacity they need to best serve their customers, with participants’ spectrum holdings ultimately being subject to the FCC’s existing spectrum aggregation and competitive review process.

Observing the lessons of history, there is no evidence to suggest that auction participation restrictions are needed or effective. Mobile Future recently submitted a white paper²⁶ analyzing the distribution of spectrum resources through FCC wireless service auctions conducted between 2003 and 2013 – a period during which the FCC conducted open auctions and evaluated proposed spectrum holdings on a case-by-case basis using a spectrum screen as opposed to a cap. Mobile Future found that, when carriers large and small chose to participate in the auction process, they successfully secured spectrum. In the nine auctions offering

²⁶ “FCC Spectrum Auctions and Secondary Markets Policies: An Assessment of the Distribution of Spectrum Resources Under the Spectrum Screen,” available at <http://mobilefuture.org/resources/fcc-spectrum-auctions-and-secondary-markets-policies-an-assessment-of-the-distribution-of-spectrum-resources-under-the-spectrum-screen/>.

spectrum for terrestrial mobile broadband services conducted between 2003-2013, non-nationwide operators and small businesses won nearly half (46%) of the aggregate spectrum offered (on a MHz/POPs basis). In the 2006 Advanced Wireless Service (“AWS”) auction – the one spectrum auction conducted between 2003 and 2013 in which all four nationwide operators participated (either directly, through wholly-owned or controlled subsidiaries or via minority investments)²⁷ – T-Mobile acquired more spectrum (26% of all MHz/POPs acquired) than AT&T and Verizon Wireless combined (25%). Obviously, when carriers elect to sit out an auction, they can not win the offered spectrum. For example, neither Sprint nor T-Mobile participated in the FCC’s last auction of below 1 GHz spectrum (the 700 MHz auction in 2008). Sprint has been absent from several auctions – the most recent being for H Block spectrum adjacent to Sprint’s nationwide 5 MHz block of PCS spectrum.

Still others have suggested that the Commission artificially weigh some spectrum in its spectrum screen or limit some providers’ access to low-band spectrum. This too is the wrong approach as it relies on inaccurate technical assumptions about the engineering value of certain spectrum swaths to different network operators. Both lower band and higher band spectrum offer efficiencies in expanding wireless coverage or enhancing much needed capacity based on geography, topography, existing spectrum holdings and use, and other factors. Indeed, in dense urban areas most likely to experience spectrum constraints, carriers need high-band spectrum to augment capacity. It should be operators and their engineers – not the government – that determine the optimal technical combination of spectrum assets that best

²⁷ For example, Sprint was a minority (5%) investor in SpectrumCo, a new entrant to the wireless arena. SpectrumCo acquired 20.62% of the total MHz/POPs won in Auction 66.

meet the needs of their customers based upon company-specific factors including existing spectrum holdings and network infrastructure.

The secondary marketplace is working to enable competitors to get access to the low-band spectrum they need. While T-Mobile did not participate in the 700 MHz auction, it has since acquired 700 MHz spectrum in post-auction transactions. T-Mobile already has acquired more than 95 million MHz/POPs of 700 MHz spectrum from non-nationwide carriers and, as mentioned above, has a pending deal in which it will acquire more of this spectrum from Verizon Wireless.

The international community's experience with spectrum auctions also cautions against imposing restrictions on participation. Mobile Future filed a white paper with the FCC exploring this very issue. The paper, entitled "The Case for Inclusive Spectrum Auction Rules: How Failed International Experiments with Auction Bidding Restrictions Reveal the Strength of Inclusive Rules that Put Consumers and Innovation First"²⁸ reflects the experiences learned from several less-than-successful auctions held outside of the U.S.

For example: Of the six European countries that used preferential auction rules in 2000 and 2001 in an effort to enhance competition, not one has a single additional carrier in their market today. The new market entrants, artificially propped up by undoubtedly well-intentioned regulators, failed to succeed in the marketplace. By contrast, here in the U.S., every significant new entry into the wireless sector since the mid-1990s arrived via the proving

²⁸ "The Case for Inclusive Spectrum Auction Rules: How Failed International Experiments with Auction Bidding Restrictions Reveal the Strength of Inclusive Rules that Put Consumers and Innovation First," available at <http://mobilefuture.org/new-paper-the-case-for-inclusive-spectrum-auction-rules/>.

ground of a market-based transaction – a vital test of sustainability in such a capital-intensive industry.

These experiences show that restricting the participation of bidders will lead to poor outcomes for consumers as well as reductions in innovation and in much-needed public revenues. The FCC should conduct open spectrum auctions.

Encouragingly, this is an issue that has the government's attention – both in the Administration and at the FCC. Here are a few specific priorities essential to continued progress:

- *Advancing Spectrum Auctions.* The FCC must continue its time-sensitive efforts to craft rules and regulations to advance a well-executed broadcast spectrum incentive auction with a goal of clearing at least 120 MHz of spectrum for mobile broadband. With spectrum exhaust already impacting cities around the country, delay simply is not an option. Freeing up underused broadcast spectrum for mobile must remain a top FCC priority – one worthy of concrete action and meaningful progress in the coming months. While we certainly applaud parallel efforts to explore greater spectrum sharing at 3.5 GHz and enhanced unlicensed access at 5 GHz, time is of the essence to auction additional spectrum for licensed use. With the exception of the H Block, the FCC has not auctioned any new spectrum for mobile broadband usage in almost six years.

- *Support for Secondary Market Transactions.* Equally important is consistent, clear and vocal support for pragmatic market solutions that allow spectrum to flow to its best and highest use in a timely way. This can help alleviate the consumer impacts of spectrum exhaust in the near-term. Secondary market transactions, and other new business combinations, have

emerged as mission-critical to keep pace with fast-expanding consumer and business demand. FCC review of secondary market transactions must be timely and predictable.

- *Continued Efforts to Repurpose Federal Spectrum.* As Americans turn to their wireless devices for everything from managing their health to enabling their businesses, large swaths of prime spectrum capacity held by various U.S. government agencies still go underutilized. The federal government must deliver on President Obama's commitments to identify and reallocate government spectrum for commercial use. As the largest holder of U.S. spectrum, the federal government plays a key role and has a central responsibility to help ensure the continued growth, speed and connectivity of U.S. mobile networks and the innovation and economic benefits they deliver to us all. I am encouraged by the Administration's and the FCC's efforts to repurpose spectrum in the 1695-1710 MHz and 1755-1780 MHz bands, and support the FCC's efforts to adopt rules to govern the licensing of this spectrum. The Administration and the FCC also should continue their efforts to make the 1780-1850 MHz band available for commercial use. Additionally, we urge the government to not become overly reliant on spectrum-sharing solutions when repurposing and relocating are viable options.

- *Enable Investment and Innovation.* Ultimately, it will be government policies employing regulatory restraint, simplicity and certainty that will best sustain the intensely competitive dynamic of our wireless innovation ecosystem, encourage the necessary private investment to ensure its ongoing strength and the continued flow of innovation it offers our nation.

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Thank you again for the opportunity to testify today. I look forward to your questions and the continued opportunity to work together to unlock all the promise that mobile innovation holds for American consumers and our economy.