

**PREPARED REMARKS OF FCC CHAIRMAN AJIT PAI  
TO THE FEDERATION OF INDIAN CHAMBERS OF COMMERCE AND INDUSTRY  
FRAMES 2020**

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Hello, everybody! It's great to be with you—at long last. I hope that everyone is staying safe and healthy during the global COVID-19 pandemic.

This is my second time speaking at FRAMES. My first was back in 2014. I'm sorry that it took me so long to return, but I hold out hope that absence truly does make the heart grow fonder, even when the absence is that of a government regulator.

In all seriousness, I had actually planned on being with you in Mumbai this March. I was looking forward to seeing in-person the top headliners of Indian media and entertainment, and learning from all of you where the Indian marketplace is going. That trip unfortunately didn't happen because of the coronavirus pandemic. But I did have the honor in February of being part of the U.S. delegation to India that was headed by the President. One of the many highlights of this trip was the state banquet at Rashtrapati Bhavan. And one highlight of the banquet was sitting across the table from A.R. Rahman, who as you know is the Academy Award-winning musician who composed the soundtrack for *Slumdog Millionaire*. After speaking with him, I got a bold idea: What if I ended my FRAMES keynote by showcasing a Bollywood song and dance number with other conference-goers? Alas, we will never know what could have been—*Kabhi Khushi Kabhi Gham*, indeed.

My 2014 FRAMES remarks didn't have a big finishing number, either. But looking back, I'm relieved to say that they did a pretty good job of identifying the new technologies and trends that would reshape the media and entertainment landscape. Back then, I suggested that 2014 was a hinge moment for Internet video. And here we are in 2020. Thanks to faster fixed broadband networks and 4G LTE, and I'm quoting here, "over-the-top providers are impacting the market in a big way . . . [and] mobile video is exploding." There are so many OTT choices for consumers that we're calling it "The Streaming Wars." Meanwhile, more than 60% of video viewing worldwide is on mobile devices.

That transformation will only continue, with technology set to re-shape even further the media and entertainment sector.

For example, new broadcast TV standards are being developed, including the ATSC 3.0 standard being rolled out in the United States. This next generation of over-the-air broadcasting will enable interactive programming and ultra-HD picture quality.

Thanks in part to the FCC's efforts, we also have opened the doors to the rollout in the United States of Wi-Fi 6, the next generation of Wi-Fi. Wi-Fi 6 will be over two-and-a-half times faster than the current standard, and it will offer better performance for connected devices. I'll talk more about this a little later.

Another game-changer is 5G. In 2018, the average mobile connection worldwide was 13 Mbps. 5G networks can deliver wireless connectivity measured in gigabits, not megabits. With 5G, the lag time between a device's request for data and the network's response will be less than one-tenth of what it is today. Wireless networks that today support one thousand connected devices per square kilometer could instead support one million. On top of that, 5G will also create a new option for fixed home broadband.

What will the advances of 5G mean for the entertainment sector? First and foremost: No more buffering. People already love mobile video, and they're consuming more and more of it every day. Imagine how much more they will demand this content when you get rid of slow load times and mid-stream interruptions.

It's no big surprise, especially for this audience, that improvements in connectivity will accelerate the shift to streaming and on-demand and mobile video. But what are some of the new applications and services that will be unlocked by 5G?

When it comes to entertainment, the categories where most analysts are predicting significant breakthroughs include virtual reality and augmented reality.

VR can offer a new platform for storytellers to create content unlike anything we've ever seen. And as big-screen TVs and surround-sound systems make the home-viewing experience more popular, movie theater operators are looking at VR and AR to create more immersive theater experiences. VR and AR can also open new doors in areas like healthcare and education, opportunities that seem especially relevant as people are accessing those things at home during the pandemic.

Considering VR and AR are still nascent technologies, it's fair to say these are areas where we'll see some of the biggest leaps forward over the next five to ten years. But if you ask me what entertainment category is going to see the most technology-fueled growth, I'd bet on gaming.

First of all, gaming is already huge—much larger than most people realize. In 2019, consumers spent over [\\$120 billion](#) on digital games worldwide. For context, that's three times the global box office for movies in 2019. Looking long-term, gaming is especially popular with digital natives who grew up in the Internet era. Last year, [52% of Gen Z](#) and 46% of millennials in the United States regularly played video games for hour-plus stretches.

And people aren't just playing video games. They're watching them, too. In the United States, major networks aired esports auto racing when the in-person events had to be scrapped because of the pandemic, and viewership exceeded expectations. More than 200 million people watch gaming content on YouTube, logging more than 50 billion hours of viewing time annually. Just last month, Twitch had more than 7 million users watch over 1.6 billion hours of content. Gaming has become so popular that there are efforts to include esports as events at international sporting competitions such as the Olympics and Asia Games. And professional gamers can earn thousands of dollars a month. This gives hope to millions of parents—myself included—who have spent the last four months watching their kids play video games seemingly nonstop.

In my view, market analyst Matthew Ball offers a keen insight into why gaming could be the entertainment space's biggest beneficiary from 5G. Ball [writes that](#) all media is the product of three things: (1) technology; (2) content; and (3) business models. He argues that gaming, more than TV, movies, or music, is most closely linked to technological change—its growth is driven by it. By contrast, in other media categories, it's a simpler story: New technologies replace existing ones. Think of streaming replacing digital downloads replacing CDs replacing cassettes. With gaming, technology unlocks net-additive growth—it makes the overall pie bigger. Console gaming has held relatively steady for 20-plus years, while PC-gaming has become almost as big as console gaming. Mobile gaming, which didn't exist 15 years ago, is bigger than both combined. With 5G and other technological advances, like the aforementioned VR, we can expect to see entirely new gaming experiences.

Add this all together, and you understand why Netflix CEO Reed Hastings once said that he believes Netflix's biggest competitor is the video game Fortnite. As a regulator, this quote is inspiring, in a sense. That's because my job as a regulator is to promote the public interest. And history has shown us that the greatest driver of consumer benefits is not government-knows-best regulation, but a competitive free market. Competition drives creativity. Competition drives investment. And competition drives down consumer prices.

When Netflix is trying to figure out how to offer a better value proposition than not only cable multisystem operators and other streaming video services, but also video-game makers, all competitors will have to step up their efforts. This is daunting for content creators and media companies, but it's great for consumers.

I know I've spent most of my time today talking about content. But at the FCC, we're focused more on networks—in particular, the wired and wireless networks that are the indispensable infrastructure of the digital media economy.

This is more relevant than some might think. For one of the key challenges for media companies, now and into the future, will be how to reach customers, or potential customers, on their terms—on their preferred devices, in their preferred places, and at their preferred times. This is in part a question of what networks can support. So I'd like to spend the rest of my time talking about the FCC's approach to promoting cutting-edge networks like 5G that will serve as a platform for new entertainment services and applications.

I noticed that this panel is titled, "Regulating Creativity: Overcoming Legacy Challenges to Shape the Future of M&E." I think "overcoming legacy challenges" is actually a pretty good description of the FCC's regulatory philosophy under my leadership.

It's long been the case that technology changes constantly, and at a pace much faster than government agencies are capable of moving. That's why, immediately after becoming FCC Chairman, I called for an across-the-board review of the Commission's rules and regulations. I wanted to identify rules and policies that no longer made sense given technological advances and changes in the marketplace, and either revise or repeal them.

This task of modernizing the Commission's rules has kept us quite busy over the past three-plus years.

To be clear, we haven't been eliminating rules for the sake of eliminating rules. Our goals have been to match the rules to the times, and to promote innovation and investment in faster, better wired and wireless networks. So we targeted regulations that were holding back network advancements.

A good example of what I'm talking about is the Commission's old regulations that made it more difficult for telephone companies to transition from legacy networks based on copper lines to new, IP-based networks. We've eliminated these rules. As a result, money that was being spent propping up the crumbling infrastructure of the past has now been freed up to build and expand the networks of the future.

Shifting to 5G, one of the big challenges we faced was that the Commission's infrastructure rules were written in an era when our cell networks relied primarily on 80-meter towers. But 5G networks rely on exponentially more small cells. Without reform, this would have meant an exponential increase in regulatory approvals. To cut through this red tape, we set a reasonable deadline for cities to rule on siting applications and reasonable limits on siting fees. Thanks in part to the changes that we made, the number of wireless small cells deployed in the United States has more than quadrupled.

If there's one area where the FCC has done the most work to re-think legacy decisions, it's the spectrum chart. Adopting forward-thinking spectrum policies and making additional spectrum available for 5G services is a key component of realizing the promise of a 5G future.

Just look at the 500 megahertz swath of spectrum from 3.7 GHz to 4.2 GHz—what we call the C-band. This spectrum is mostly used by fixed-satellite companies to beam content to video and audio broadcasters, cable systems, and other content distributors. With advances in technology, these companies can provide the same services using considerably less spectrum. Also, this mid-band spectrum is appealing for 5G because it combines good geographic coverage with good capacity.

That's why the FCC recently voted to clear the lower 280 megahertz of the C-band and make this spectrum available for flexible use through a public auction that will begin this December 8th. Rather than accept the status quo, we've made 280 megahertz of high-quality mid-band spectrum available for 5G, while protecting incumbents, who will continue to provide the same services as today using the band's upper 200 megahertz.

We also need more mid-band spectrum to enable unlicensed innovation, like next-generation Wi-Fi 6, which I mentioned earlier in my remarks. And to meet that need, the Commission voted this April to make 1,200 megahertz of airwaves in the 6 GHz band available for unlicensed use. With this vote, we've effectively increased the amount of mid-band spectrum available for Wi-Fi by almost a factor of five. And we're doing all of this while protecting from harmful interference important incumbent services in the 6 GHz band, including the operations of electric utilities, public safety, broadcasters, and wireless backhaul.

Looking higher up the spectrum chart, the FCC began 2020 by wrapping up an auction of 3,400 megahertz of spectrum in the upper 37, 39 and 47 GHz bands, the most spectrum ever awarded in a single auction. Not long ago, these airwaves were considered unsuitable for broadband. But by adjusting our spectrum allocations to reflect technological advances, these airwaves are now being used to deploy 5G.

Of course, the FCC's job is not just to promote the development and deployment of new communications technologies. We also have an obligation to make sure all Americans can benefit from those technologies. So, in addition to all I've discussed, the FCC has been working to make sure that high-speed connectivity is available to all Americans.

Our primary initiative to do this is our Rural Digital Opportunity Fund. Established this January, the Fund will provide more than \$20 billion to support the deployment of up to gigabit-speed broadband networks in those parts of rural America that currently don't have fixed broadband service. And we've updated rules in our existing subsidy programs to favor the deployment of faster networks covering more residents in rural communities.

On the wireless side, we're in the process of creating a \$9 billion fund to bring 5G to rural America. My view is that delivering digital equity for rural consumers at the outset is far better than trying to bridge a digital divide later. And along those lines, when the FCC last year approved T-Mobile's acquisition of Sprint, we conditioned our consent on T-Mobile meeting stringent 5G buildout benchmarks. For example, T-Mobile must cover 97% of our nation's population with 5G in 3 years and 99% in 6 years, including covering 85% of our nation's rural population with 5G in 3 years and 90% in 6 years.

One last point I'll make involves security. Connectivity brings many benefits, no question about it. But it also raises the risk profile. When 5G is embedded in almost every aspect of our society and economy—from businesses to homes, hospitals to transportation networks, manufacturing to the power grid—securing our networks will become much more important and much more difficult.

To counter this risk, the FCC has prohibited the use of money from our Universal Service Fund (which includes programs like the Rural Digital Opportunity Fund) to purchase or obtain any equipment or services produced or provided by companies posing a national security threat, such as Huawei and ZTE. We have also begun a process to catalog, remove, and replace unsecure equipment from legacy networks that we help fund. And over a year ago, we denied authorization to China Mobile to enter the U.S. market.

I won't take a lot of time to spell out the risks posed by many of these Chinese firms or the Chinese Communist Party itself, because this audience already understands the dangers. Just last week, the Indian government banned 59 Chinese mobile apps that pose security risks, including TikTok. It concluded they "are engaged in activities . . . prejudicial to the sovereignty and integrity of India." When it comes to the security of something as important as the digital economy, my view is that we cannot afford to take a risk and hope for the best. I commend the Indian officials who have embraced this approach.

Speaking of Indian officials, I know that the longer I speak, the longer you have to wait to hear from my friend, Ram Sharma. It has been my honor to serve as Chairman Sharma's opening act today, and I look forward to our question and answer session.

Thank you again to FICCI for this opportunity to get together with this wonderful group. As A.R. Rahman would say, "Jai ho!"