

**REMARKS OF
CHAIRWOMAN JESSICA ROSENWORCEL
TO THE NATIONAL SCIENCE FOUNDATION
“6G: OPEN AND RESILIENT BY DESIGN”
ALEXANDRIA, VIRGINIA
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Good afternoon. I want to thank the National Science Foundation for gathering all of us here today because this is an important moment in spectrum policy. It might not feel like it right now—especially after eight dense hours of wireless panels and technical talk—but watershed moments rarely do at the time. In fact, if you look back, some of history’s most pivotal moments began in small and unrecorded ways.

This month we celebrated the fiftieth anniversary of a tiny event that changed the world. And this one was about as mundane as you can imagine. It was a single phone call.

Let me explain. Roll back five decades to April 3, 1973. That was the year of the first personal computer—called the Alto. It was the year that Ethernet networking was created. It was the year that the United States launched the Pioneer 11 into orbit—the first spacecraft to study our solar system up close. It was a year when a lot happened in technology. It was also a time when we glimpsed, but did not fully grasp, just how connected our world was about to become.

That’s because on April 3, 1973, an engineer named Marty Cooper made the very first cell phone call. He used a bulky, two-pound device. It looked like a cross between a brick and a shoe with an antenna sticking out of the top. It was not lovely. But it was a prototype of what would one day become the Motorola DynaTAC8000x, the world’s first commercial cell phone.

To make it work, Marty stood near a 900 MHz base station in midtown Manhattan—on Sixth Avenue, between 54th and 53rd Streets. Who did he dial for that very first call? He called his rival at Bell Laboratories who had been working on the same thing, and Marty declared his team at Motorola had done it. They had built a working mobile phone.

According to Marty, there was silence at the other end of the line. And according to his rival at Bell Laboratories—well, to this day he says he doesn’t remember that call.

Like I said, history often starts in small and unrecorded ways.

I should mention that Marty is a friend. If he were here today, he would tell you how it would take another decade of technical and regulatory progress before the DynaTAC8000x would reach consumers—at the low, low price of \$4,000. It would take two more decades for the number of mobile phones to overtake landlines. And now, five decades later, this wireless technology is so vital for so much of modern life.

We are gathered at this summit because someday soon someone will make the very first 6G connection. And we need to prepare now for the wireless world it will bring.

If you have made it this far into the day and you are still thinking it is too early to start planning for 6G, think again. Much like in the early days of 5G, the scrum for 6G is already intensifying. South Korea, for example, has announced a program to develop the core standards and technologies for 6G within the next five years. Research programs in Finland and Japan have signed agreements to collaborate on developing 6G technologies. China released its 14th Five-Year Plan for economic development and research and 6G is front and center. Many other countries, including in Europe, have launched projects, programs, and alliances to shape this next generation of wireless technology.

Of course, you could say, on good authority, that no one knows yet with precision what 6G will entail. You'd be right. But if we have learned anything from our experience rolling out 5G, it is that wireless policy matters for economic and national security. That is true in the United States, and it is true globally. And in those early days of 5G, there were signals that needed our attention—from the vulnerabilities of supply chains to the changing dynamics of global standards development to the need for more openness and security. We should learn from what came before and recognize that emerging 6G technology benefits from advanced thought and planning.

That is why I believe it is time to start thinking seriously about what 6G means. Even better, this community gathered at the National Science Foundation is the perfect place to do it.

My contribution to this effort today is to quickly tell you about five things we are doing now at the Federal Communications Commission to help shape the future of wireless.

First, we are imagining and defining what 6G will be. At the FCC, I started the Nation's first federal effort to plan for 6G in our Technological Advisory Council. This is a group of public and private sector experts who are tasked by the agency with thinking big about what our 6G future will look like. Their work is vital. It will help ensure the United States is able to stay on top of new developments and identify how the latest scientific research into communications technology can be turned into the services that will power our future.

Second, at the FCC are working to free up more spectrum to serve as a launching pad for this new technology. We have already identified the 7-16 GHz band as prime mid-band airwaves for the 6G era. That is why we have started an inquiry into making 550 megahertz of spectrum in the 12.7-13.25 GHz band available for new commercial mobile use. Very shortly, I plan to share with my colleagues a proposal for moving that work forward.

Third, we are preparing for the coming convergence of satellite and terrestrial communications in 6G. We call it the Single Network Future because we believe next-generation communications will combine traditional ground-based airwaves with satellite signals. The FCC kicked this effort off last month with a rulemaking to explore how to support direct satellite-to-smartphone communication and bring our spectrum policies into a converged future.

Fourth, we are creating space for innovation. Just yesterday, the FCC adopted a new Policy Statement that, for the first-time, established principles for receiver performance. For too long, our spectrum policies have focused on transmitters and not receivers. But in spectrum policy both are vital. Both matter. And having efficient policies for receivers can clear the way for more innovation in our skies by turning spectrum scarcity into spectrum abundance.

And fifth, we are working to harmonize our efforts with our peers around the world. At the end of this year, the world's wireless authorities will come together for the World Radiocommunication Conference. At the FCC, our work to prepare for this gathering is well underway. In fact, last week our World Radiocommunication Conference Advisory Committee signed off on what is now more than 70 draft recommendations covering everything from identifying future spectrum bands for global harmonization, policies for new satellite constellations, and so much more. In other words, we have plans for our connected future. Now comes the real work. Because we will need to coordinate these recommendations across the government and with other countries around the world. I believe if we do this right, we will head to the conference with more than just recommendations but with a vision for our wireless future.

All of this is progress. But as today's summit demonstrates, unlocking the promise of 6G will require planning and coordination. As we plan for this future in the United States, we also need to be mindful of the spectrum demands in the present. And one thing that absolutely needs to happen is the restoration of the FCC's spectrum auction authority.

For three decades the FCC has had the authority to auction off airwaves to commercial actors to use to deploy, create, and innovate. But on March 9 of this year, that authority expired for the first time. Consider it another small, barely recorded moment in history. But if it is not corrected, it could have big impact.

Here is why Congress restoring that authority is so important. If you go back to the 1970s, when Marty made his very first cell phone call, the FCC was using—let's be honest—a totally inefficient approach to allocate commercial spectrum. It was not market-based. It was paper-based. Because applicants interested in acquiring licenses for our airwaves filed lots of paper with the FCC and the agency just decided who got what, for what technologies, and where.

But in 1993, two decades after Marty made his call, the FCC was able to reimagine how we distribute our commercial airwaves. Instead of doling out specific licenses for specific uses based on political cues, we ushered in a new era of spectrum auctions—with bidders able to use those licenses however they choose. It is hard to imagine now, but the idea of auctions and flexible use spectrum was once mocked by experts, opposed by industry, and dismissed by policymakers. No one is mocking them now. Because over the past three decades, the FCC has held 100 spectrum auctions and in the process raised more than \$233 billion for the United States Treasury. As a result, our auction program has enjoyed strong bipartisan support here at home, and our efforts have been a model for regulators worldwide. In fact, not long ago the Nobel Prize for Economics was awarded to two Stanford University economists for their work assisting the FCC with the design of the first successful spectrum auction.

For all these reasons, in the past Congress always extended FCC auction authority without interruption. That didn't happen this time around—but we can fix that, and we should. Restoring this authority will provide the United States with the strongest foundation to compete in a global economy, counter our adversaries' technology ambitions, and safeguard our national security.

Most importantly, we cannot afford to wait. As I mentioned a moment ago, the global wireless community is convening for the World Radiocommunication Conference this year. It is where we set the future of spectrum policy. Restoring the FCC's auction authority is the first step in doing that, and it is my hope we can do it soon. And when we do, let's think about building a new spectrum pipeline that that can carry us to 6G.

I have shared a lot in a short time. So I will end here and say thank you for listening and participating today. This gathering is important because while we continue to work to realize the full potential of 5G, we also need to clear the way for 6G. It will take time, energy, and effort. But if we do it right, our wireless future will be big. Because this technology will touch every sector of the economy and every aspect of our lives. And maybe, just maybe, we might have more moments like that single call Marty Cooper made fifty years ago, and, even better, we might recognize their awesome potential in real time.

Thank you.