

Center for Strategic and International Studies

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William Barr,
U.S. Attorney General

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James A. Lewis: Well, good morning. Thanks for staying for what's been so far a really good session.

I suppose our next speaker needs no introduction – boy, there's an old one for you. But I will say that William Barr was confirmed as the 85th attorney general by the Senate in February of last year, so it's been almost a year. We are doing this on your anniversary. Great. He's one of only two people in U.S. history to serve twice as attorney general, previously in the George H.W. Bush administration. He was the executive vice president and general counsel for GTE and then Verizon, so very knowledgeable on telecom issues. And prior to serving as attorney – as attorney general he was at one of the law firms here in D.C., one of the big ones.

So without further ado, Mr. Attorney General. (Applause.)

William Barr: Thank you, Jim, and thanks for that introduction. And thank you for hosting this event. Appreciate all of you taking the time to come here and participate. It's good to see so many of my colleagues from the department participating.

You know, my original career goal was to go into the CIA as a China specialist, and therefore I spent six years at Columbia getting a B.A., an M.A. focusing on Chinese studies. And I remember in one of my government classes we were having a debate – and this was in the early '70s – we were having a debate as to which of our foreign adversaries would pose the greatest long-term threat to the United States. And the question was whether it was Russia or China. And I recall the observation of one of my classmates, who was arguing that China posed the greatest long-term challenge to the United States. And he said Russia wants to conquer the world. We can deal with that. China wants to own the world. That's more difficult to deal with. And there's a certain truth in that.

In 1972, our hope was that integrating China into the international economic system would encourage the PRC to liberalize its economy and that a freer market and economic growth would gradually lead to greater political freedom for its citizens. Unfortunately, economic liberalization has only gone so far. While individuals have been permitted some degree of economic freedom, the Communist Party remains in firm control of the economy. It's an architecture of state power whose principal features are central planning, state-owned enterprises, and government subsidies.

Politically, the PRC remains a dictatorship under which the Communist Party elite jealously guard their monopoly on power. Marxist-Leninism and Maoism linger on, primarily as justification for communist rule, which is authoritarian through and through.

The Communist Party is willing to resort to harsh measures to repress any challenge to its one-party rule, whether it is suppressing religion, rounding up and reeducating Uighurs, resisting efforts at self-determination in Hong Kong, or using the great firewall to limit access to ideas and penalize their expression.

For a brief time after the Cold War, we had indulged the illusion of – that democratic capitalism had triumphed and was now unchallenged by any competing ideology. That was a nice – that was nice while it lasted. But we are now in a new era of global tension and competition. And China has emerged as the United States' top geopolitical adversary based on competing political and economic philosophies.

Centuries before communism, China regarded itself as the central kingdom, Zhongguo. And it wasn't central to the region. It was central to the world. And its ambition today is not to be a regional power, but to be a global one.

For China, success is a zero-sum game. In the words of then General Secretary Xi, Communist Party members should concentrate their efforts on building a socialism that is superior to capitalism. Such efforts, Xi claimed, would require party members to concentrate their entire spirit, their entire life, for the socialist ideal. And the reward for this sacrifice would be the eventual demise of capitalism.

I mentioned my classmate's comment about China wanting to own the world, because today I'd like to focus on the challenge of China's drive for economic and technological supremacy. But I'm not suggesting that China's ambitions are merely economic, or that our competition with China is, at bottom, merely an economic rivalry.

The Chinese have long been a commercial people. But for China, purely economic success is not an end in itself. It is a means to a wider political and strategic set of objectives. Throughout its long history, China has always used its economic strength as a tool to achieve its political and strategic objectives.

In 2015, the Chinese leadership launched its Made in China 2025 plan, a sustained, highly coordinated campaign to replace the United States as the dominant technological superpower. The dictatorship has mobilized all elements of Chinese society, all government, all corporations, all academia, and all of its industrious people, to execute seamlessly on an ambitious plan to dominate the core technologies of the future.

This drive is backed by industrial policy involving huge investments in key technologies, massive financing, and subsidies in the hundreds of billions of dollars. Unfortunately, it also involves industrial espionage and theft of technology and intellectual property, as well as forced technology transfers, predatory pricing, leveraging China's foreign direct investment, and strong-arm sales tactics in target markets, including the use of corruption.

Make no mistake about it, China's current technological thrusts pose an unprecedented challenge to the United States. The stakes for our country couldn't be higher. Since the 19th century, the United States has been the world's leaders in innovation and technology. It has been America's technological prowess that has made us prosperous and secure. Our standard of living, our expanding economic opportunities for our young people and for future

generations, and our national security all depend on our continued technological leadership.

In the past, prior administrations and many in the private sector have too often been willing to countenance China's hardball tactics, and it has been this administration that has finally moved to confront and counteract China's playbook. (Applause.)

Today I want to focus on two aspects of the challenge we face. The first is how China jumpstarts its technology initiatives by stealing our technology. And second, I want to explain why China's current focus on dominating 5G technology is of central concern.

The ability of totalitarian countries to engage in central economic planning can at times appear to be an advantage, especially when mobilizing the kind of technological blitzkrieg that we see unfolding today. The downside is that central planning suppresses technological innovation. Breakthrough ideas arise in free societies like ours, which have long led the way in cutting-edge technological development.

The Chinese are trying to have it both ways. While they are orchestrating a centrally planned campaign to dominate key technologies, they are attempting to capture the benefit of our free society by the outright stealing of our technology. The stealing of technology is not a side show; it undergirds and propels their efforts. As my colleague, John Demers, the assistant attorney general for our National Security Division, observed, "China wants the fruits of America's brain power to harvest the seeds of its planned economic dominance."

In 2018, as you've been hearing, the department launched its China Initiative to confront China's maligned behaviors and to protect U.S. technology. As the presentations earlier this morning and throughout the day will demonstrate, investigations during our initiative have repeatedly shown how the PRC is using intelligence services and tradecraft to target valuable scientific and technical information held by the private sector and the academy. This covers a wide range of technologies, from those applicable to commercial airplane engines, to renewable energy, to new materials, to high-tech agriculture.

Since the announcement of Made in China 2025, the Department has brought trade secrets theft cases in eight of the 10 technologies that China is aspiring to dominate. In targeting these sectors, the PRC employs a multi-prong approach, engaging in cyber intrusions, co-opting private sector insiders through its intelligence services, and using non-traditional collectors such as graduate students participating in university research projects.

Chinese theft by hacking has been prominent, and I'm sure you have discussed some of the more recent cases. Those actions by China are continuing, and you should expect more indictments and prosecutions in the future.

Outside cyberspace, defendants pose as U.S. customers to avoid export controls and recruit U.S. employees or co-opt insiders to steal trade secrets. And at academic and other research institutions, China uses talent programs to encourage the theft of intellectual property. And finally, China complements its plainly illicit activities with facially legal but predatory behavior: the acquisition of U.S. companies and other investments in the United States.

The department confronts these threats through the Committee on Foreign Investment in the United States and Team Telecom. As one example, earlier this year, based on a recommendation from the Justice Department and other agencies, the Federal Communications Commission denied a license to China Mobile on national security grounds.

The PRC's economic aggression and theft of intellectual property comes with immense costs. It has been estimated that the annual cost to the U.S. economy could be as high as 600 billion (dollars). The department will continue to use our full suite of national security tools to combat the threat posed by theft directed and encouraged by the PRC. But as I'm sure the – as the FBI director stressed, our ability to protect American technology will ultimately depend on a partnership and working in collaboration with industry and the academy.

Now, let me turn to a very concrete problem that confronts us today. It is the pivotal nature of 5G technology and the threat arising from China's drive to dominate this field.

5G technology lies at the center of the technological and industrial world that is taking shape. In essence, communications networks are not just for communications anymore. They are evolving into the central nervous system of the next generation of internet, the industrial internet, and the next generation of the industrial systems that will depend on that infrastructure.

China has built up a lead in 5G, capturing 40 percent of the global infrastructure market. And for the first time in history, the United States is not leading the next technological era.

Now, much of the discussion on the dangers of allowing China to establish dominance in 5G have been focused on the immediate security concern of using communications networks that China can monitor and surveil. That is, in fact, a monumental danger, and for that reason alone we should mobilize to surmount China's drive to dominate 5G. But the stakes are far higher than this.

It has been estimated that the industrial internet powered by 5G could generate new economic opportunities in the range of 23 trillion (dollars) by 2025. If China establishes sole dominance over 5G, it will be able to dominate the opportunities arising from a stunning range of emerging technologies that will be dependent on and interwoven with the 5G platform.

From a national security standpoint, if the industrial internet becomes dependent on Chinese technology, China would have the ability to shut countries off from

technology and equipment upon which their consumers and industry depend. The power the United States has today to use economic sanctions would pale by comparison to the unprecedented leverage we would be surrendering into the hands of China.

It is important to understand how 5G will enable a revolution in industrial processes. Some Americans think that all we are talking about is analogous to the shift from 3G to 4G in our wireless networks. But we are talking about change that is far more fundamental than merely increasing download speeds for iTunes and websites and movies.

The move from 3G to 4G meant moving from download speeds of about one megabit per second to around 20 megabits per second, and this increase made it possible to move the storage of data and some modest processing power off the devices and onto the cloud. But even this modest evolution of the wireless business spawned wide new fields of innovation, applications, and businesses. And because the United States was the country that developed 4G, we were the country that captured most of the economic opportunity that flowed from that technology.

The jump to 5G is a quantum leap beyond this. We are now talking about multi-gigabyte-per-second peak rates for both download and upload. These fiber-like speeds, coupled with placing Edge computing facilities closer to the users, means 5G is capable of extremely low latency, under 10 milliseconds. And with this capacity, the tiniest devices can have virtually instantaneous connectivity and access the infinite computing – computing power.

With these characteristics, 5G becomes a real-time, precise system of command and control. Devices of all kinds, some smart, some sensors collecting and transmitting data, some actuators carrying out remote commands, can be dispersed and embedded in business and industrial equipment across a wide array of businesses, such as transportation, energy, finance, health care, agriculture, heavy construction, and so forth. 5G provides the command-and-control function for managing all of these industrial processes.

As the world of 5G unfolds, we will be seeing not just smart homes, smart thermostats, but smart farms, smart factories, smart heavy construction projects, smart transportation systems, and so forth, and a host of new emerging technologies. In addition to artificial intelligence, we'll become interwoven with and dependent on 5G and the industrial internet; for example, robotics, the Internet of Things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, material science, energy storage, and quantum computing.

China has stolen a march, and is now leading in 5G. 5G is an infrastructure business. It relies on radio access network, RAN, facilities. China has two of the leading RAN infrastructure suppliers, Huawei and ZTE. Together, as I've said, they have already captured 40 percent of the market and are aggressively pursuing the balance.

Huawei is now the leading supplier on every continent except North America. The United States does not have an equipment supplier. China's principal competitors are the Finnish firm Nokia, with a 17 percent share, and the Swedish firm Ericsson, with a 14 percent share.

The Chinese are using every lever of power to expand their 5G market share around the globe. It is estimated that a total – the total market for 5G infrastructure is \$76 billion. China is offering over \$100 billion in incentives to finance customer purchases of its equipment. That means that China can offer its customers to build their 5G networks for no money down. And they have a salesforce and technicians of 50,000 around the globe to push the acceptance of Huawei infrastructure.

In an infrastructure business like 5G – and I say this as someone who spent 15 years in the telecommunications business – scale is critical. The business requires huge investments in R&D, as well as very high capital costs. The larger a company's market share, the better it can afford these costs. Competitors facing a shrinking, addressable market find it harder to sustain the levels of investment required to stay competitive.

Chinese companies start with the advantage of the largest domestic market, giving them instant scale. And as they add this around the world, they will be able to invest more in their technology. The more China gains ground as a supplier of 5G infrastructure, the more it will also gain ground in all the constituent technologies that undergird 5G infrastructure.

5G rests on a stack of technologies, including semiconductors, fiber optics and rare-earth and materials. China has moved to domesticate all of these elements, so it will now – it will not be dependent on foreign suppliers.

Semiconductors provides a good example of the ripple effect of Chinese leadership in 5G. China now consumes over half of the world's semiconductors. China has now started to replace U.S. semiconductors with its own. Its scale in this field will permit it to make the investments needed to close the current quality gap. As China builds its scale in the semiconductor industry, it will place substantial pressure on alternative semiconductor suppliers. And of course, semiconductors are indispensable to a wide range of technology and industries, apart from 5G.

China's success in 5G infrastructure is also translating into advantages in a range of new technologies associated with 5G. Artificial intelligence is a good example. It is interwoven with the industrial internet. As China captures more and more of the data generated by its 5G infrastructure, it can produce better artificial intelligence because that is what artificial intelligence learns from. The more data, the better the AI. It's a virtuous cycle.

Within the next five years, 5G global territory and application dominance will be determined. The question is whether, within this window, the United States and our allies can mount sufficient competition to Huawei to retain and capture

enough market share to sustain the kind of long-term and robust competitive position necessary to avoid surrendering dominance to China. The time is very short, and we and our allies have to act quickly.

While much has to be done, it is imperative to make two decisions right away. First, we have to deploy the spectrum necessary for a robust 5G system in the United States. We haven't done this. This is the mid-band spectrum, called the C-block or the C-band. The FCC has been working hard to get the C-band spectrum out into the market through an auction, and it is critical to get this done within the next very few months. Even then, the United States will need 400,000 base stations to cover the nation if we rely solely on C-band. This could take a decade or more to build out. Just by comparison, today's wireless system runs on 70(,000) to 80,000 base stations. China has already installed approximately 100,000 base stations for 5G. We will have to build 400,000 base stations for nationwide 5G coverage after the C-band is put out.

Now, recently there have been some interesting proposals to jumpstart U.S. 5G by also making available L-band spectrum, for use in tandem with C-band. By using an L-band uplink, we could dramatically reduce the number of base stations required to complete national coverage. It has been suggested that this could cut the time for U.S. 5G deployment from a decade to 18 months and save approximately \$80 million. While some technical issues about using the L-band are being debated, it's imperative that the FCC resolve these questions, make its decision on spectrum, and move forward.

The bottom line is that we have to move decisively to auction the C-band and bring resolution on the L-band. Our economic future is at stake. We have to bear in mind in making these spectrum decisions, that given the narrow window we face the risk of losing the 5G struggle with China should vastly outweigh all other considerations.

Second, we have to make a decision on the horse we're going to ride in this race. Who is the 5G equipment supplier or suppliers that we will rely on to compete against Huawei around the globe, to win contracts from operators and blunt Huawei's drive to domination? It's always – it's all very well to tell our friends and allies that they shouldn't install Huawei's, but whose infrastructure are they going to install? If we and our allies, and other countries that do not want to put their economic fate in China's hands are not going to install Huawei's infrastructure, we have to have a market-ready alternative today.

What is a customer looking for, after all? What's the operator looking for in moving from 4G to 5G? It's a one-time decision. It's a big decision. You can't afford to make a mistake. You need to know you are buying a reliable system that will perform, because you don't have the luxury of tearing it out down the road. And, you need a system that will allow you to seamlessly migrate your installed 4G base to 5G. And you need to know that your supplier has staying power – they're not here today and gone tomorrow, they will be there for the long haul.

Those are the products that are necessary to win contracts today, and there are only two companies that can compete with Huawei right now: Nokia and Ericsson. They have the reliable products. They can guarantee performance. They have – they have proven successful in managing customer migration from 4G to 5G. The main concern about these suppliers is that they have neither Huawei's scale nor the backing of a powerful country with a large embedded market, like China.

Now, there have been some proposals that these concerns could be met by the United States aligning itself with Nokia and/or Ericsson through American ownership of a controlling stake, either directly or through a consortium of private American and allied companies. Putting our large market and financial muscle behind one or both of these firms would make it a far more formidable competitor and eliminate concerns over its staying power or their staying power. We and our closet allies certainly need to be actively considering this approach.

Now, recently there has been some talk about trying to develop an OpenRAN approach, which aims to force open the RAN into its components and have those components be developed by U.S. or Western innovators. The problem is that this is a pie in the sky. This approach is completely untested and would take many years to get off the ground, and it would not be ready for primetime for a decade, if ever. What we need today, as I said, was a product that can win contracts right now, a proven infrastructure, one that will blunt Huawei's advance.

As a dictatorship, China can marshal an all-nation approach – the government, its companies, its academia, acting together as one. We're not able to compel this. When we have faced similar challenges in the past, such as World War II and Russia's Cold War technological challenge, as a free people we rallied together. We were able to form a close partnership among government, the private sector, and academia, and through that cooperation we prevailed and the challenges we have met. Unfortunately, the cooperative bonds and sense of purpose we were able to muster in the past are harder to call on today. And in the 1950s, we had the Sputnik moment to help galvanize the nation and bring unity to our response, and we have not seen a similar catalyst today.

If we are going to maintain our technological leadership, our economic strength, and ultimately our national security in the face of this blitzkrieg, we need the public and private sectors to work together and come shoulder-to-shoulder. To our private-sector friends, I would say that appeasing the PRC may come with short-term benefits, but I urge you to question the longstanding assumption that promises of market access are worth the steep costs. The PRC's ultimate goal is to replace you with a Chinese company.

University and think-tank colleagues, I'd ask that you not allow the theft of technology under the guise of academic freedom. Do not allow the PRC to dictate your research or pressure you into ignoring diverse voices on controversial topics. Consider whether any sacrifice of academic integrity or freedom is worth the tradeoff.

And to our allies, I applaud your efforts to stand up to China's economic leverage, but we must do more and act collectively. Let's not forget that our collective economic influence and power is far stronger.

Throughout history, free societies have faced regimented adversaries. At critical junctures they have achieved the unity and purpose necessary to prevail, not because they have been compelled to do so but because they freely choose to do so. We must make that choice today.

Thank you very much. (Applause.)

(END)