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COMMANDING HEIGHTS: ENSURING U.S. LEADERSHIP IN THE CRITICAL AND EMERGING TECHNOLOGIES OF THE 21ST CENTURY

Wednesday, July 26, 2023

House of Representatives,

Select Committee on the Strategic Competition Between the United States and the Chinese Communist Party,

Washington, D.C.

The committee met, pursuant to call, at 7:01 p.m., in Room 360, Cannon House Office Building, Hon. Mike Gallagher [chairman of the committee] presiding.

Chairman Gallagher. The select committee will come to order.

I would like to start with a video. Without objection, the video will be added to the record, and the clerk will play the video.

[Video shown.]

Chairman Gallagher. I also want to begin by recognizing a few special guests we have in the audience.

Mr. Wittman's granddaughter is here. I would like to embarrass her, if she is still in the room.

Morgan? Morgan, are you here?

I see you back there. Hello, Morgan.

And this week, I am teaching a course on the Korean War built off a study of T.R. Fehrenbach's "This Kind of War." And I have my entire class in the front two rows here on the left, as well as, I think, my co-teacher, Aaron MacLean, somewhere in the back.

So you are all are granted extra credit for being here tonight.

As we are learning this week, the early 1950s, the early Cold War, was an interesting time. Obviously, the Cold War turned hot very quickly, and we stumbled into a war for which we were very ill-prepared. It offers lessons for the present day.

But we won the Cold War in part by controlling cutting-edge technology. And by the late 1980s, the Soviets had a bigger nuclear arsenal and even a larger conventional army, but our weapons were smarter. With the help of new technologies like advanced microchips, GPS, and stealth, the U.S. military was able to offset these Soviet advantages through mass employment of guided weapons, or what the Soviets referred to as a "reconnaissance strike complex."

The Chinese Communist Party has learned from the Soviets' mistakes and is

pursuing global dominance of critical technology. The plan is brilliant in its simplicity: acquire our best technology for virtually free through forced transfers, cyber attacks, the infiltration of our businesses and academic institutions, dishonest collaborations, and shady purchases by front companies, and use it for their own malign purposes.

Their national mil-civ fusion strategy, designed to collapse any barriers between the commercial sector and the military, ensures that even technology acquired by businesses, licitly or illicitly, makes its way to the PLA.

Here is the problem: We are not controlling cutting-edge technology anymore. We are all but giving it away, in many cases. We have a bucket with massive holes in the bottom, and we continue to pour billions and billions of R&D dollars into that bucket every year.

We could plug the holes by enforcing export controls, ensuring appropriate research security safeguards, and enacting balanced outbound capital restrictions, but we choose not to. It is time for that to change. It is time for Congress to step up.

It is as though a burglar has robbed your home dozens of times before, told you that he is coming back tonight, and yet you still leave your front door unlocked and your valuables lying around in plain sight. The former head of NSA called CCP IP theft the "largest transfer of wealth in human history."

But who is being robbed and harmed? It is not the CEOs. It is not the lobbyists. It is our servicemembers. It is ordinary Americans. Our country is filled with invisible factories -- those that would have been built here if we had protected American technology. There are invisible paychecks and invisible raises -- those that our workers would have gotten if we weren't sending $600 billion to our foremost global adversary every year in stolen IP and trade secrets. That is $4,000 to $6,000 per year per an American family of four, by the FBI's own estimate.

Put simply, you are being robbed every day in plain sight by the Chinese Communist Party.

I now recognize the ranking member, Raja Krishnamoorthi, for his opening statement.

[The statement of Chairman Gallagher follows:]

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Mr. Krishnamoorthi. Thank you, Mr. Chairman.

Thank you to the witnesses.

Thank you to the audience.

Tonight, you will hear a lot about must-win technologies. We know they are must-win because General Secretary Xi Jinping thinks they are too. He has said that the PRC must win the battle for core technologies in order to avoid being, quote, "trapped at the bottom of the global value chain." From AI to quantum computing to biotech, these are the technologies that will power our growth and largely determine who wins the global economic and security competition for the rest of the 21st century.

Witnesses will repeatedly mention a concept of military-civil fusion. This concept involves the CCP trying to win the competition of the future by basically prioritizing military needs first and avoiding a separation between the government and so-called private businesses. It is a system designed to keep control solely in the hands of the CCP and absorb failure, inefficiency, and waste, because they are not focused on short-term profit but, rather, on long-term dominance.

This isn't just a competition to see whether the CCP or the U.S. gains an economic or military advantage. This is a competition between two distinct systems to determine the values that will be imbedded in the foundational technologies of day-to-day life.

In the American system, AI will primarily be used to enhance productivity. We aim to use it to ensure workers' livelihoods are improved, not replaced. In the CCP system, we have seen AI used to surveil those who criticize the government, with the potential to usher in a new model of digital authoritarianism that the CCP is already exporting around the world.

This is the inflection point. If we stay ahead, then we can make sure technology

serves humanity and not the other way around. But the reverse is also true. If we lose, we could see this technology impact our freedoms and limit our opportunities. Those are the stakes.

So the question is, how do we respond?

First, we cannot fund or participate in the CCP's military-civil fusion endeavors. Earlier this month, we launched an investigation into U.S.-based VC firms who have made investments and provided support to PRC companies. We are still awaiting findings from that investigation, but it is important to know whether American investors are potentially supporting the CCP's human-rights violations and military pursuits.

Second, we must marshal a sense of urgency about leading in the technologies of the future. AI's computational power is doubling every 6 to 10 months, which means we cannot hesitate to take bold action now. And we can't fuel the potentially nefarious efforts of the CCP. AI is also entering a new phase of transformational generative power that Google's CEO, Sundar Pichai, has said is, quote, "going to have a bigger impact on the world than some of the most ubiquitous innovations in history."

Third, we must double-down on our people, whether that is advanced-skills-based training and STEM education or enhancing our legal immigration system, which is our number-one killer competitive advantage over the PRC. Our people are our greatest weapon in this competition.

According to China's own Tsinghua University, the PRC has only 12 percent of the world's top AI researchers, while the U.S. has nearly 60 percent of them. It is not a coincidence that AI researchers flock to Silicon Valley instead of Shenzhen. If we don't onshore talent, we will offshore innovation. If we don't onshore talent, we will offshore prosperity.

Now, the CCP will always be able to do some things we would never want to do in

America. Here, we are not going to lawlessly scoop up people's data and shove it into a government database to train AI models, and we are not going to perfect facial recognition by singling out a religious minority and targeting them for persecution.

But what we can do is double-down on the virtues that make America exceptional. We can be the best place in the world to study STEM, do basic research, attract high-skilled talent, and invest your capital. We can be the ones who protect privacy and responsibly regulate AI instead of using it to censor and surveil.

We can make America America again by unleashing freedom, innovation, imagination, and embarking on a radical Americanization of the technologies of the future. Because if we can do that, we can win this competition.

I look forward to hearing from our witnesses today, and I yield back the balance of my time.

[The statement of Mr. Krishnamoorthi follows:]

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Chairman Gallagher. Thank you to the ranking member.

If any other member wishes to submit a statement for the record, without objection, those statements will be added to the record.

[The information follows:]

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Chairman Gallagher. Okay. We are lucky to have three incredible witnesses here tonight.

I want to first introduce Mr. Josh Wolfe, who is the co-founder and managing partner at Lux Capital, a venture capital fund that is focused on emerging technologies. Mr. Wolfe, in addition to being the biggest sci-fi nerd that I know, is also director at more companies than I can count, including Shapeways, Strateos, Variant, and several others.

I meant that as a compliment, Mr. Wolfe. Josh, thank you so much for taking time off one of your dozen jobs to be with us today.

Our second witness is Bill Evanina, the former Director of the National Counterintelligence and Security Center, and is now the CEO of The Evanina Group. Mr. Evanina had a distinguished career in the FBI, including stints as assistant special agent in charge of the FBI's Washington Field Office and a decade on an FBI SWAT unit. He has also attended numerous times the Pulaski Polka Days Parade in Pulaski, Wisconsin, which I attended on Sunday, that your dad -- because your dad was a member of a polka band in Pennsylvania, and you drove all the way up to Wisconsin.

That is your most distinguished accomplishment, Mr. Evanina.

And then we also have Ms. Lindsay Gorman, a senior fellow for emerging technologies at the German Marshall Fund, where she focuses on U.S.-PRC technology competition, with a focus on AI, quantum, and 5G, among others. Ms. Gorman previously served as a senior advisor at the Office of Science and Technology Policy and at the National Security Council for the Biden administration.

Welcome. Thank you all for being here this evening.

If you could please stand and raise your right hand, I will now swear you in.

[Witnesses sworn.]

Chairman Gallagher. You may be seated.

Let the record show that the witnesses have answered in the affirmative.

Thank you all.

Mr. Wolfe, you are now recognized for your opening remarks for 5 minutes.

TESTIMONY OF JOSH WOLFE, CO-FOUNDER AND MANAGING PARTNER, LUX CAPITAL; WILLIAM EVANINA, FORMER DIRECTOR OF THE NATIONAL COUNTERINTELLIGENCE AND SECURITY CENTER AND CEO OF THE EVANINA GROUP; AND LINDSAY GORMAN, SENIOR FELLOW FOR EMERGING TECHNOLOGIES, GERMAN MARSHALL FUND

TESTIMONY OF JOSH WOLFE

Mr. Wolfe. Chairman Gallagher, Ranking Member Krishnamoorthi, and distinguished members of the select committee, thank you for inviting me to testify about the importance of U.S. leadership in critical and emerging technologies.

My name Josh Wolfe, co-founder and managing director of Lux Capital. We are a $5 billion venture firm with offices in Silicon Valley and New York City.

Personally, I was raised in Coney Island, Brooklyn, by a single mom, public schoolteacher, amidst towering public housing, with a dream to be one day amidst the towering intellects, scientists, and investors who showed that American science and entrepreneurship can be a force for good in the world.

Today, I have the tremendous privilege, alongside my Lux partners, to identify dreamers who are turning sci-fi into sci-fact, including critical emerging technologies, from AI and autonomous systems, to Nobel Prize-winning biomedical research, aerospace, and semiconductors.

And the hundreds of entrepreneurs that we have funded are inventing at America's technological frontier. We are turning the impossible into the inevitable. And we like to say that we believe before others understand.

And at Lux, we invest with purpose -- to secure our life and environment, to supercharge productivity, to enable creativity and free expression, and to reduce human

suffering and advance human health.

America's open scientific culture and free speech is at our core. We invest in matter that matters. And we don't put profit over principles.

Cultures ultimately get what they celebrate. And if we are to celebrate America's entrepreneurs at the cutting edge, Congress must support long-horizon science, help bridge the world's genius to America and vice versa, and defend America's values from foreign interference.

None of Lux's companies would exist without decades of foundational work by scientists who are exploring the vast unknowns beyond the current limits of human knowledge. Now, unfortunately, many of the researchers who are dedicated to extending those limits face debilitating competition for limited NIH grants, short-term funding for defense programs, musical chairs of leadership, scrambled reporting lines, and expiring congressional authorities.

Now, to compete with the Chinese Communist Party, we must remain united in our shared pursuit of scientific and technological development to lead the globe in discovery and in influence. And we must show the CCP and the whole world that our diverse voice has come together stronger than any authoritarian regime and our individual pioneers can propel us faster and further than any other centralized plan.

America must commit to advancing scientific progress and its commercialization by upgrading current funding institutions and building new ones that cultivate long-term horizons of excellence. America can and must do more to give our scientists the freedom that they desperately need to consider the hardest questions and ultimately answer them.

The American Dream is our greatest asset in the global competitive landscape, and we must continue our tradition of seeking and attracting individuals from everywhere.

Many of our own brightest contributors at Lux are immigrants -- from Vietnam, Pakistan, India, Israel, and, yes, even China.

And, with intention, America should be attracting defectors and accelerating China's brain drain, to our national benefit, by welcoming the best talent on the planet to the U.S. Talent, human capital, like financial capital, goes where it is welcome and stays where it is well-treated. So we must continue to welcome the best talent on the planet to the U.S.

America's technological advantage is also strengthened through collaboration with our allies, and it should be vigilantly guarded from our adversaries. While the CCP's Belt and Road Initiative seeks to entice the developing world through centralized planning, simultaneously spreading its surveillance and control, with callous disregard for human and property rights, America must seize the opportunity to offer a free and democratic alternative by exporting U.S. ingenuity, with talent from anywhere.

Through thoughtful engagement and sustained investments abroad, the U.S. can provide a clear choice for nations in search of a more prosperous future. We can't afford to retreat from the world. Our country and our scientific prowess would suffer for it.

America's greatest strength is the ability to speak freely, associate widely, and connect spiritually with others without legal constraint. Political disagreements are necessary in a free democracy, of course, but we can all agree that there is no place for foreign interference in our universities, scientific institutions, companies, economy, and political system.

The CCP is working to attract American scientists through its Thousand Talents Program, hacking America's most innovative companies and stealing our discoveries and know-how, while punishing dissidents within and beyond its own borders. In contrast to

our values, open ideas, unfettered markets, and fair competition ensure that the best inventions win and America stays ahead. And even as I speak, America's scientific entrepreneurs are inventing a future that Lux finances every single day.

I also believe that failure comes from a failure to imagine failure. And to avoid failure, we need long-term scientific funding, contributions from the world's most talented minds who are yearning for freedom, and well-resourced programs to share American values across the globe. By doing those things, we will illustrate the clear contrast between a world led by the United States and a world ruled by the CCP.

When I was growing up in Coney Island, I could never imagine the honor of testifying before you and the American people today. It is a privilege to engage in thoughtful and open discourse about the future of American progress.

Thank you. I look forward to your questions.

[The statement of Mr. Wolfe follows:]

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Chairman Gallagher. Thank you, Mr. Wolfe.

Mr. Evanina, you are recognized for 5 minutes.

TESTIMONY OF WILLIAM EVANINA

Mr. Evanina. Chairman Gallagher, Ranking Member Krishnamoorthi, members of the select committee, it is an honor to join my fellow witnesses here today for this hearing.

I want to first thank this committee for holding this hearing on this very important topic.

Today, our Nation faces a wide array of threats, from terrorist organizations to nation-state threat actors, cyber actors, and others. However, and unequivocally, the existential threat and unparalleled threat is from the Communist Party of China. The comprehensive threat is the most complex, pernicious, strategic, and aggressive threat our Nation has ever faced. It is an existential threat to every fabric of our Nation.

Xi Jinping has one goal: to be the geopolitical, military, and economic leader of the world, period. His approach, through the CCP's efforts, to invest, leverage, infiltrate, influence, and steal from every aspect of the United States. Naivete by those who believe or hope otherwise will only accentuate Xi's intentions and progress.

Additionally, the U.S. private sector, academia, and research and development is in the cross-hairs of every Xi decision and motive. As the committee is aware, it is currently estimated that economic loss from theft of intellectual property and trade secrets is between $300 billion and $600 billion per year. As the chairman noted, what that equates to is about $4,000 to $6,000 a year for an American family of four after

taxes. Those are real costs.

China's ability to strategically obtain our intellectual property and trade secrets via legal, illegal, and sophisticated hybrid methods is like nothing we have ever witnessed. As the chairman mentioned, it is said by many to be the largest theft of intellectual property in the history of the world. It just happened to be in the last decade.

I believe we as a Nation must approach this existential threat with the same sense of urgency, leadership, spending, and strategy as we have done the past two decades in successfully preventing and deterring terrorism. I would offer to this committee that we are in a terrorism event -- a slow, methodical, strategic, persistent, and enduring event which requires a degree of urgency of government and corporate action.

It is clear that, under Xi Jinping, the CCP's economic war with the United States, combined with his intent for military supremacy, has manifested itself into a terrorism-like framework.

Let me be more specific. The CCP's capabilities and intent are second to none as an adversary. Countless cyber breaches, insider threats, penetrations into our critical infrastructure have all been widely reported. Add in the CCP's crippling stranglehold on so many aspects of our supply chain, and what results is domestic vulnerability of unacceptable proportions.

When you incorporate the CCP's recent actions, to include email hacking of Cabinet members and agencies, sophisticated surveillance balloons across our sovereign land, technical surveillance stations just 90 miles from our shore in Cuba, domestic maritime port supremacy, Huawei, strategic land purchases near military installations, fentanyl, TikTok, malign influence, et cetera, the collage begins to paint a bleak mosaic, beyond blinking red.

I have not even mentioned 5G, AI, and other aspects which will be discussed

tonight. And I haven't discussed anything that is classified.

The inability or unwillingness to look behind the curtain and deal with this existential threat is no longer an option for the Congress, the administration, academic institutions, and our private sector. There is no more curtain to look behind.

This existential threat emanates from a very capable competitor who is looking beyond competition to global dominance. Our Nation needs strategic leadership now more than ever.

Thank you for the opportunity to be here with these witnesses, and I look forward to your questions.

[The statement of Mr. Evanina follows:]

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Chairman Gallagher. Thank you, Mr. Evanina.

Ms. Gorman, you are recognized for 5 minutes.

TESTIMONY OF LINDSAY GORMAN

Ms. Gorman. Chairman Gallagher, Ranking Member Krishnamoorthi, and distinguished members of the select committee, thank you for the opportunity to testify before you today and for convening this hearing on a topic at the heart of our democratic future.

The United States has woken up to a cold reality that, after decades of technical leadership, this position is under severe challenge from an autocratic rival in the People's Republic of China.

At the same time, leadership in critical and emerging technologies is now a dominant mode of national power through its ability to drive economies, advance militaries, and write the global rules of the road for standards and governance.

Today, the PRC leads in strategic technology areas such as 5G implementation, AI surveillance, and elements of quantum communication applications. It remains a fast follower in many others. While there is no definitive accounting, according to the Australian Strategic Policy Institute, China holds global leads in 37 of the 44 technology areas they track.

None of this has been by accident. For decades, we have allowed the PRC to execute its global technology dominance strategy largely unimpeded, naively assuming that economic integration would bring about political liberalization and ignorant of how that interdependence would be weaponized against U.S. interests and values.

Today, AI chatbots coming out of the PRC have to comply with strict censorship demands and promote core socialist values. Facial recognition and AI surveillance systems aim to take out Uyghur Muslims based on their features. To fuel twin goals of control and biotechnology leadership, the Chinese Government has run forced DNA-collection blood drives to amass the world's largest DNA database and conduct ethnic and genomic surveillance.

At times, U.S. firms have aided and abetted these initiatives. And the lure of market access is a strong silencer on abuses.

As the PRC transitions from technology and standards taker to maker, PRC companies are exporting technology along China's Belt and Road Initiative and building the value systems they advance into international standards. The stakes for the defense of global democracy and freedoms could not be higher.

I come at this issue as a researcher leading a team at the German Marshall Fund focused on how democracies can, together, outcompete autocrats; as a former policy professional, developing allied technology cooperation initiatives; and, in a past life, as a scientist in the lab, conducting quantum physics experts and building artificial intelligence systems.

I have seen firsthand the incredible strengths of the United States science and technology ecosystems, how effectively we attract and draw on the world's talent, and the crucial role of the Federal Government in unlocking discovery and de-risking innovation.

In 2007, DARPA held a nationwide competition, the Urban Challenge, aimed at creating the first autonomous vehicle to drive in a city environment. I was part of an interdisciplinary team of scientists and engineers, from mechanical engineering and electrical engineering to robotics and computer science, reverse-engineering a

standard-issue Ford to drive by itself and outfitting it with radar and sensing capabilities and drive-by-wire capacity.

What was a government-driven garage project then today has seen the very technologies pioneered adopted into modern vehicles, and the scientists and engineers involved have gone on to build our commercial self-driving car industry.

There is a misconception that American innovation is driven entirely by the private sector and happens separate from, or even in spite of, the state. On the contrary, as Mariana Mazzucato brilliantly illuminates, government R&D, including from DARPA, is behind some of our most significant scientific and technical achievements.

While the genius of Apple and Steve Jobs is touted as the quintessential American success story, the lesser-known version is that almost all the scientific breakthroughs that powered the iPhone, from LCD touchscreen displays and Siri voice control software, to GPS and the very internet itself, came from the scientists and engineers in public research programs in the United States and Europe.

The rise of PRC telecommunications from Huawei is as much an exemplar of PRC-directed subsidies and technology transfer as it is of democratic apathy towards our own strengths.

As we seek to deliberately counter the PRC's technology dominance ambitions, ensuring U.S. leadership in critical and emerging technologies of the 21st century requires not just using but cultivating our own sizable competitive advantages: a robust innovation ecosystem; human capital at home and abroad; an attractive, if imperfect, power of example; and a strong network of allies and partners that China lacks.

In my written testimony, I offer a dozen recommendations for how to structure ourselves for the modern technology competition, from establishing an analytical cell to measure the competition, to the creation of a new export control regime and outbound

investment screening tools.

The United States holds an incredibly strong hand in this competition. To win, we must play our cards well and now.

[The statement of Ms. Gorman follows:]

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Chairman Gallagher. Thank you, Ms. Gorman.

We will now proceed to questions.

It occurs to me that I should have asked these brilliant students to come up with a question for me this morning. But tomorrow you can critique the questions I ask and submit a question after the fact.

Mr. Evanina, in your written statement, you say, "In the PRC, there does not exist a bifurcation between government, military, and the private sector."

In that vein, do you think it is fair to say that there is no such thing as a truly private company in China?

Mr. Evanina. Chairman, that is correct. In my experience in the intelligence community in the last decade, I have not seen an example of a private company that is either not owned, operated, and influenced by the Communist Party of China.

Chairman Gallagher. So what, then, are the implications for our export control regime? Today, we kind of have a whack-a-mole strategy that is focused on an entity-by-entity listing as opposed to a more comprehensive or a countrywide restriction.

Is it time to change our export control regime to restrict the export of certain technologies to the entire PRC, regardless of whether the company in question claims to be private?

Mr. Evanina. Well, I think it is a combination of both understanding the threat, understanding just the mosaic for which we look at this aspect in China compared to the way we do things in the United States.

I think with the private-sector compliance, Treasury, Commerce have to look at it the way the Chinese look at it. It is not just as easy as to say, we are going to blacklist or whitelist or export control X or Y. It is, what is the underlying intent of the Communist

Party in China behind that industry or technology they're trying to sell here to the U.S.?

Chairman Gallagher. Mr. Wolfe, as a longtime venture capitalist, you understand the importance of capital in building and scaling advanced technologies.

Do you believe PRC industries that directly contribute to the development of technologies for the People's Liberation Army should have access to U.S. capital and our capital markets?

Mr. Wolfe. No. No, I don't. It is one thing to think about the Belt and Road Initiative. It's another thing if you're handing somebody the belt to tie around your neck.

Chairman Gallagher. You made a comment in passing about short-term DOD funding. Could you elaborate on that and what we might do to make DOD both a better customer and a better leader in this technological space?

Mr. Wolfe. We on the venture capital side at Lux and many of our peer firms are trying to do our part to provide the private capital so that we can take the risks on emerging startups.

There are companies like Anduril that are all defense-focused, and Saildrone and Primer, that touch every aspect -- air, land, sea, space, sub-sea. The important thing is being able to make sure that the funding is there to support the long-term horizons of these companies.

Venture capital firms typically are 10 years in duration, and we're able to make a decade-long bet knowing that we're going to take a shot and we're not sure if it's going to hit the rim or be an air ball or be a three-pointer for a very long period of time. Government has to pair with us and do the same.

Long-term funding, long-term investment in science produces long-term results.

Chairman Gallagher. And to go back to the question about investing in Chinese

technology companies that have PLA affiliations, what do you think your colleagues in the VC space that continue to invest in such companies -- I mean, what are they -- what are they missing that you seem to understand?

Mr. Wolfe. I actually think that the work that your committee is doing is starting to put a spotlight. And that spotlight might be partially shame, but I think it's also just putting some sunlight on the issue.

People that might have invested a decade ago in China might have been doing it under a reasonable inducement or belief that this was an economy that was growing, that technology would do like it's done in the rest of the world, produce more democracy and freedom and choice and options for people to express their creativity and genius. It has been very clear over the past few years that it's the antithesis of that. That these have become tools of suppression and surveillance and government capture is well-elucidated.

So I think that the people that made these investments some time ago probably did it with good intent, and now you're in illiquid investments that they're stuck in. And they have to make the reputational concerns about what they do in the future, and they've got to figure out how do they not lose their own investors' money by getting out now.

Anybody that's making new investments I think is making a massive mistake.

Chairman Gallagher. Well, your belt comment evinces -- I don't know if it was deliberate -- the old Soviet phrase that, when it comes time, the capitalists will compete for the contract for the rope with which they'll hang themselves. So it's a very vivid metaphor.

Quickly, Mr. Evanina, in your testimony, you said Ford's recent deal with CATL creates a critical supply-chain dependency on the CCP.

If this deal goes through, what are some of the implications to the broader EV

market, if Ford continues with it's deal with CATL?

Mr. Evanina. Thank you, Mr. Chairman.

I think the CATL deal with Ford is not only, as you mention, problematic in its own right, but I think it's also a disincentive to entrepreneurs and organizations who want to invest in their own ideation, manufacturing, or promulgation of EV battery capabilities, when it's just going to be so much cheaper to jump on to the Ford contract with CATL. And I think Ford -- it was a capitulation to the easy way out of the EV market.

Chairman Gallagher. Thank you.

With that, I recognize the ranking member for 5 minutes of questions.

Mr. Krishnamoorthi. Thank you, Mr. Chair.

You know, our hearing today is about who will lead in what the CCP calls the technological, quote/unquote, "commanding heights of the future economy."

I'd like to turn your attention to a rather chilling image produced by a Chinese AI company using facial recognition software to identify residents of Beijing. Relying on hundreds of millions of cameras, the CCP uses AI to operate a surveillance state.

The CCP is also exporting its surveillance model globally, selling surveillance technology, such as what you see in this image, to authoritarian regimes in Africa, South America, and other places as well.

Ms. Gorman, the CCP retains backdoors into this very technology that is used to collect data on foreigners as well as its residents in China. If the CCP occupies commanding heights of AI and sells its tech worldwide, this image could become all too common around the world, right?

Ms. Gorman. Yes. This technology is propping up autocrats worldwide and enabling them with technological tools.

Mr. Krishnamoorthi. Well, let me turn your attention to how the CCP has

managed to scale the heights of AI, refining its surveillance capabilities, in the first place.

The CCP has invested many resources of its own, as we know, but what you may find surprising is that American capital and know-how are accelerating their efforts. This chart shows that 37 percent of the total global funding raised by Chinese AI companies between 2015 and 2022 came from transactions involving at least one American investor.

That's why our committee recently launched a bipartisan investigation into U.S. VC firms investing in Chinese companies in AI, quantum, and semiconductor technologies, including many tied to CCP human-rights violations and their military.

Mr. Wolfe, as a venture capitalist yourself, you'd agree that VCs don't just bring money to the table, they also bring their technical insights and know-how, right?

Mr. Wolfe. Yes.

Mr. Krishnamoorthi. And, indeed, American VCs may be facilitating transfer of the very technical information or IP that the CCP is trying to steal.

Mr. Evanina, earlier this year, NSA Director Nakasone warned American AI startups that the CCP is actively trying to steal their AI IP.

You don't disagree with Director Nakasone, do you?

Mr. Evanina. No, sir.

Mr. Krishnamoorthi. In fact, the CCP also uses American-backed AI to violate human rights. In fact, it appears that one of the VC firms in our investigation invested in a company known as Intellifusion that's now on the Entity List for using AI to surveil Uyghurs.

Now, let me just show you this photo here. This photo shows that this company, Intellifusion, won the, quote, "Xinjiang Security Excellent Enterprise Award."

So, Ms. Gorman, U.S. investments in Chinese AI companies may be helping the CCP oppress Uyghurs. Isn't that right?

Ms. Gorman. That's right.

Mr. Krishnamoorthi. And, in fact, Mr. Evanina, I believe that before the Senate you testified that the CCP now has the personal data of, I think you said, 80 percent of Americans. Isn't that right?

Mr. Evanina. That's correct.

Mr. Krishnamoorthi. And of the remaining 20 percent of Americans, they have some data, right?

Mr. Evanina. Most of it.

Mr. Krishnamoorthi. And that's going to be fed into their AI models to, again, be used against us potentially?

Mr. Evanina. Absolutely.

Mr. Krishnamoorthi. So let me turn to my final topic here. In 2020, Xi Jinping warned that the PRC is at the mercy of foreign countries because it relies on, quote, "key and core technologies that are controlled by others."

In fact, interestingly, just a few years ago, a PRC newspaper actually identified China's own weaknesses in developing certain technologies. They call them "chokepoint technologies."

And if you could put up the chart, please, this final graphic?

Based on their own data, which they published in a PRC newspaper, of the 35 technologies that the PRC themselves have identified as chokepoints, these are where the leading companies that specialize in developing them are located. And, as you can tell, 25 of those 35 are located here in the U.S.

So, Ms. Gorman, the U.S. Government has implemented export controls on a variety of technologies, including semiconductor chips, which, as you know, was done rather effectively back in October. However, there are other technologies, such as

LiDAR, which is used for autonomous vehicle navigation and could be of a dual-use nature.

What needs to be done to control those technologies, which apparently aren't controlled now? Or what should be done to keep this out of the hands of the CCP?

Ms. Gorman. So the one thing we really need is the ability to rapidly assess these chokepoints for ourselves, not just rely on Chinese newspapers to put them out.

In the case of LiDAR, for example, that chokepoint was identified, I think, back in 2018, at a time when the U.S. did have a near market dominance in that technology. Today, there are Chinese companies developing LiDAR. There are companies in Israel that China seeks to partner with. And we can't just react and be behind the eight ball in assessing our own strategic advantages.

That's why, in my written testimony, I recommend establishing an analysis center, similar to in structure the National Counterintelligence Center, that would draw on both our open-source and our closed information to be continually assessing the state of this competition, finding these chokepoints, and then assessing what the impact of controlling them would be on the U.S. economy.

There are tradeoffs here, because if we attempt to control something that maybe China already has a leg up on, has a way around anyway, we risk allowing for market gaps and leapfrog innovation. In the case of LiDAR and the chokepoints paper especially, one of the areas that was identified for LiDAR was the ability to actually leapfrog with solid-state LiDAR. And that's what's happening in China today.

Mr. Krishnamoorthi. Thank you.

Chairman Gallagher. Mr. Wittman is recognized for 5 minutes.

Mr. Wittman. Thank you, Mr. Chairman.

I'd like to thank our witnesses for joining us today.

I'll ask that we put a slide up here.

And we know that America leads the way in innovation, but this is changing. Just look at the following graph. We see that is China exponentially increasing their R&D investments. And this effect is multiplied by what they steal from us. Not only are they advancing that, but they're stealing an amazing amount from us and from others around the world.

In order to maintain this edge over the Chinese, the U.S. has to leverage both public and private investment. We cannot do this by a single source by itself.

And I am very honored today, I introduced a bill with my colleague, Congressman Khanna, to authorize the Office of Strategic Capital within the Department of Defense to help the U.S. military do just that, to use every -- every -- resource across the enterprise to have an all-hands-on-deck mentality on this.

Mr. Wolfe, we know that the U.S. has to better leverage private capital for national security purposes. And, as you said, we need to say "no" to U.S. investment in Chinese companies, period. And we know that we have to move that investment away.

So the question is, how do we do that? And considering U.S. national security interests, do we do that through a command-and-control approach? Do we say, hey, we're going to put regulations in place to say, no, you can't do these things, here are the guardrails? Or do we put in incentives or disincentives within a free market to do that?

Give me your perspective, because you have looked at this and studied this in depth. I'd love to get your perspective, from the general statement that you made to the specifics of how do we accomplish that.

Mr. Wolfe. Well, I'd say two ways.

From the investment community, it really starts with a sense of moral admonishment, and I think that's something that the committee's work is doing that's

important, which basically decouples the idea of profit over principle. And so you can't make business decisions if there isn't a moral component to that. And I think that is just good for business.

So that's number one, people looking and saying, what are the implications of what we develop? Are we reducing human suffering? Are we developing a technology that we're going to put in an adversary's hands that's going to come back and cause us harm?

The chart that you show I think is a really important chart, because what it tells me is, we have to do more, we have to invest more in R&D, more in long-term science.

What I see China doing is exactly what we did for many decades, which was have superior advantaged science and scientists here who were developing the foundational base upon which the private market and investors like us can come in and commercialize those technologies.

That prior chart with the 35 key technologies, 25 of them from the U.S., 35 of them should be from the U.S.

Mr. Wittman. So, if we stop that investment into China, make sure it's not going to support Chinese technology and innovation, on the other side, though, in order to multiply that effect, we have to do everything we can to encourage not just public investment but private investment and do that at the pace of relevance.

Give me your perspective about what we can do not only to stop the investment, to really -- whether it's through other means or through a regulatory means, to stop the investment in China. What do we do to do more to encourage, through our mechanisms of free market, private investments, venture capital, private equity, into the U.S. innovation and technology?

Mr. Wolfe. So, if you think about the flow of capital as basically seasoning and

growing these technologies on the defensive side, I think anything that we can do to slow or thwart -- we won't ultimately be able to completely eradicate China's ability to get many of these technologies, but you'll be able, in the time dimension, to slow it.

On the offensive side, it is much more of us continuing to grow that base of science so that those critical technologies and that list continues to grow very aggressively.

On the private side, appeal to human interests. Private markets respond when there is great opportunity. We are patriots, and we want to see this country be the very best country that it can be. We also want to make great profits for our investors. And so we are drawn towards investing in cutting-edge technology and emerging technologies and defense technologies because we think it's a great business.

More and more investors will follow and see that. More and more large companies will see that. And I think if the government supports that as well -- you mentioned the Office of Strategic Capital. I've spent time with them. I know that they're just getting up and there's probably a lot of lessons that they're going to figure out along the way. We're really supportive of participating and getting involved in that.

The idea of a nominally unattractive investment that might become more attractive because there might be leverage that's available from the government -- the government wins in advancing a domestic technology, an investor wins because they're getting better returns, the company wins because they're getting capital that they might not be, and the Nation wins getting they're getting an advantage that the CCP won't have.

Mr. Wittman. Mr. Evanina, you talked a lot about how do we protect, from a national security, even a homeland security standpoint, critical technologies.

Give me your perspective on what we do to protect where we need to be as a Nation in artificial intelligence and quantum computing. Because much of what's

happening right there is technology that is spawned here, but we have to protect against Chinese theft and exploitation.

Mr. Evanina. Thank you, Congressman, for that question.

I think it's a combination of awareness of that and, as my colleagues have both mentioned -- I think Ms. Gorman has talked about the top 35 companies, the technologies -- well, first of all, we have to be aware of those. And there has to be direct conversation with the CEOs and the boards of directors of those companies so they're aware that China is coming for their technology.

And then we should hold them accountable to protect those technologies. There should be some due diligence on their efforts on the supply chain, and also some due diligence on their perspective of what they're doing to secure from a cyber perspective insider threat and hybrid technologies to prevent the Chinese from coming in.

Mr. Wittman. Great.

Thank you, Mr. Chairman. I yield back.

Chairman Gallagher. Mr. Moulton is recognized for 5 minutes.

Mr. Moulton. Thank you, Mr, Chairman.

Mr. Wolfe, your testimony emphasizes on several levels how important human capital is to the competitive success of your firm and our country.

Do you believe that this inability to attract and retrain talent here in America will hamper our competitiveness and our national security?

Mr. Wolfe. I do.

I would like to commend the committee as making an important distinction with the difference between the CCP and Chinese Americans and Chinese people and China writ large. There are roughly, as I understand it, 350,000 Chinese students here on our shores studying at our universities. We, in contrast, have about 350 from the United

States in China.

Mr. Moulton. So a few just statistics here relevant to your point. The U.S.' defense industrial base faces a critical shortage of high-skilled labor in key areas, with more than 80 percent of defense companies reporting difficulty in finding qualified STEM workers.

International students account for roughly 40 percent of STEM Ph.D.s awarded by U.S. institutions, including more than 60 percent of Ph.D.s in computer science, but many are ineligible to stay. We just teach them, give them our knowledge, and then send them back to work for the CCP.

About 40 percent of high-skilled semiconductor workers in the U.S. were born abroad.

And in one study, more than half of Ph.D. recipients in the field of artificial intelligence who left the United States cited immigration challenges as their biggest reason for leaving.

So, Mr. Wolfe, what are some of the principles that you can suggest to this bipartisan committee for smart, competitive immigration reform that will strengthen our national security and correspondingly weaken the CCP?

Mr. Wolfe. Most important is being that shining beacon on the hill and the American Dream that people are attracted to. People are not knocking on the door to get into Shenzhen. They are knocking on the door to get into Silicon Valley --

Mr. Moulton. We've got that. But what we have is this immigration system that doesn't allow them to stay. So what do we need to do to reform that?

Mr. Wolfe. I would recommend stapling a visa or a green card to anybody that's graduating with a serious advanced degree and has to stay here for a period of time to make sure that the technology and the know-how that they're getting is remaining here

on our shores.

Mr. Moulton. How important do you think it is to have bipartisan support for these kinds of reforms?

Mr. Wolfe. Huge.

Mr. Moulton. So, Mr. Chairman, we've heard this point made by so many witnesses and briefers before this committee in our short history. And I hope we can find the political courage to come forward with truly bipartisan recommendations to our colleagues to fix this self-inflicted wound.

Ms. Gorman, in our May hearing, Dr. Eric Schmidt stated that it would be a "'Dr. Strangelove' scenario" to let China set the rules of the road for AI weapons. I worry that AI weapons could become even more dangerous than nuclear weapons, because there's been no international effort whatsoever to rein them in. I'm not afraid of how we will use them; I'm afraid of how our adversaries might use them.

So, Ms. Gorman, what do we need to do to outcompete China on AI, especially AI weapons? And how do we ensure that the PLA isn't using American data to further their militarization effort?

Ms. Gorman. I agree that would be a scary scenario, indeed. And the Defense Department has put forward responsible AI principles. It's my hope and recommendation that those will be internationalized. Because this is an area where misunderstanding can quickly turn into catastrophe, with AI weapons -- the automated Dead Hand scenario. And cooperation be the Chinese Communist Party is not high, I think, on this committee's agenda, but I think this is really an area where we need to set some ground rules, on AI weapons, to make sure this doesn't spiral out of control.

As for the general competition with AI, we need to bring our strongest strength to the table. That's the human capital, the immigration reform you mentioned, expanding

H-1B visas and the Optional Practical Training program, convincing more AI researches to stay, not alienating them.

Part of China's talent program, the Thousand Talents program, and the like are specifically designed to reverse this brain drain to the United States and promote brain gain. We need to capitalize on that.

We also need to continue to fund public research and investments not just in AI technologies that we know about but also to de-risk the next-generation technologies, be they EDA tools or semiconductor processing tools.

Mr. Moulton. Thank you. Thank you.

So, Mr. Wolfe, how do we leverage our economics strength and our economic relationship to achieve some of the goals that Ms. Gorman laid out?

Mr. Wolfe. Some of it is government funding, making sure that we have availability. Again, increasing budgets for things like the NSF and NIH, getting career scientists to be able to come here and stay here and build great careers, who then can go from academia into the private sector.

Part of it is making sure that we have a robust economy of startups and big companies that can hire and employ people and that, on a relative basis, the greatest competitive advantage we have is the competitive advantage of people preferring to be here and working at U.S. companies and studying at U.S. universities because they are amongst the best and the brightest. So I would just encourage more and more and more of it.

Mr. Moulton. Thank you.

Thank you, Mr. Chairman. I yield back.

Chairman Gallagher. Mr. Moolenaar is recognized for 5 minutes.

Mr. Moolenaar. Thank you, Mr. Chairman.

And I want to thank all the witnesses for being here today.

Mr. Evanina, you led the joint FBI and CIA counterespionage effort, so you've got a lot of experience with what the CCP is trying to do in the U.S.

In your written testimony, you say that the CCP uses businesspeople, engineers, and other workers for espionage.

In my district, the U.S. subsidiary of a CCP-affiliated company is planning to build a massive battery component factory. In your view, is it basically a guarantee that some of the people who come from China to work on this project will spy for the CCP?

Mr. Evanina. One hundred percent.

So it's a combination, as my fellow witness Mr. Wolfe said, that I think when you look at the threat as in the Communist Party of China, not the Chinese people, there will an effort by the Communist Party of Chinese to infiltrate that capability via cyber, human, and hybrid methods, using businessmen, engineers, and what we call the nontraditional collector. They will go over and above to implement their efforts in that particular technology that is in your district.

Mr. Moolenaar. How do you feel the State Department does in terms of, you know, stopping nationals affiliated with the PLA from attaining work visas? And do we have the resources that we need to vet people?

Mr. Evanina. Well, I really don't know the statistics of the State Department's capabilities. But I will say that the Communist Party of China utilizes the visa program effectively and efficiently to get those strategic folks here on our homeland to do that work and sometimes, oftentimes, lie on their applications, whether or not a member of the PLA, to be here studying in the high STEM capabilities.

Mr. Moolenaar. Okay. Thank you.

Ms. Gorman, I wondered if you would comment on if you have any concerns

about Chinese autonomous vehicles operating and potentially collecting information on U.S. roads?

Ms. Gorman. I tend to have a concern about many things that China operates, whether it's the apps on our phones or potentially roads on our streets. I could imagine, especially near sensitive facilities, that type of data-gathering could be quite concerning.

And I also take the view that, just because maybe China has data on -- what was it -- 80 percent of the Americans, that doesn't mean they will have that data going into the future. And we really need much stronger data protection and data security regimes, because right now it's open season.

Mr. Moolenaar. Thank you.

Mr. Wolfe, I was intrigued about your comments about the long-horizon science and funding that. And, you know, it seems that, you know, government has done better in terms of funding basic research as opposed to trying to pick winners and losers and what, you know, new technologies.

I am wondering if you could comment on any safeguards or concerns -- you know, what strikes me is, when we fund basic research, we have an open publication process and scientific inquiry. How do we protect that from being used by the CCP and anyone else who we would have concerns about?

Mr. Wolfe. You know, again, the great thing about American science and science in general is, people come up with conjectures and hypotheses, and then they put them out there to be criticized and error-corrected, and that's a process that leads to progress. So you don't want to stifle that.

We also have a patent system which basically says, we will give you a monopoly on this particular technology for 17 or 20 years in exchange for you telling us how you do it. But the "telling us how you do it" also tells the rest of the world how you do it. And

so I think that probably requires scrutiny and consideration as it relates to intellectual property.

On the human capital side of this, of the scientists, I want to give one just simple example of one individual that I think affects us all. There was an individual who was trained here in the United States, worked at Texas Instruments for 25 years, and felt like he hit a bamboo ceiling and felt that, whether it was because of ethnicity or racism or certain views, that he was not going to ascend higher. And Taiwan said, why don't you come here and build your company and we'll give you money?

Now, that individual was Morris Chang, and the company was Taiwan Semiconductor, TSMC. It could've been Texas Semiconductor Manufacturing Corp. And I hope that we don't make that mistake and are able to keep some of the best and brightest here on our shore so that they can develop the next TSMC here.

Mr. Moolenaar. Thank you.

Mr. Chairman, I yield back.

Chairman Gallagher. I could not have teed up the next questioner better.

Mr. Khanna?

Mr. Khanna. Well, thank you, Chairman Gallagher.

And, Mr. Wolfe, I share your sentiments on Morris Chang. We met him, Representative Auchincloss, Representative Gallagher, and I. And I didn't know, actually, until I met him that he was an American expat, educated at MIT and Stanford, had been here 25 years. Texas Instruments said, we don't want to do manufacturing, so he goes to Taiwan and they set up TSMC. We could have avoided the whole thing.

I wanted -- I was struck by your comments on long-horizon science, as Mr. Moolenaar also talked about. And you talk eloquently about the need for scientific research and funding. You wax eloquently about the need to cure cancer. I assume

that means you're for increasing the NIH budget?

Mr. Wolfe. I am.

You know, it's interesting; this, to me, was a bipartisan issue. I was privileged when, in the early days of materials science and nanotechnology, President Bush II had invited me into the Oval Office, signed in a billion dollars a year. You had Newt Gingrich at the time, who was actually calling for a tripling of the NIH budget.

And I would love to see that be a bipartisan issue, to see that science is not a waste of money; it's a critical investment in our future.

Mr. Khanna. Well, just to -- you know, because I'm trying to persuade my colleagues, when we've got the China Committee here advocating against the reversal. You would not be for the $3.8 billion cuts that the Republican budget passed?

Mr. Wolfe. I think the more money we can spend on science -- and I realize that budgets are a difficult thing of where you get money from --

Mr. Khanna. Well, just clar- -- I mean, you would -- we've got a large budget. I mean, we can find a way to reverse that in the final passage. So your recommendation to the Congress would be, do not cut the NIH budget, correct?

Mr. Wolfe. I would not cut. However --

Mr. Khanna. Okay. I just --

Mr. Wolfe. However --

Mr. Khanna. I want to get my --

Mr. Wolfe. It's important. I would make sure that we really bias towards young scientists.

Mr. Khanna. No, I'm for that and making reform. But I just want to make sure that we have your official recommendation, as a Republican witness, that you want to increase the NIH budget. Because we still have time in this process.

And the Honorable Evanina, you were very eloquent on the CHIPS Act, which I had something to do with. You said, "The CHIPS and Science Act is an excellent start in reversing the chronic public underfunding of U.S. research and development." And I wholeheartedly agree.

It was a bipartisan effort. Representative Gallagher was involved in the Endless Frontier Act, and Senator Young.

I assume you would believe the CHIPS Act should be funded?

Mr. Evanina. I do, Congressman. And I think the CHIPS Act -- if we do this right, 20 years from now, we'll look at the CHIPS and Science Act as the beginning of a lot of good, bipartisan efforts --

Mr. Khanna. So would it --

Mr. Evanina. -- to fund private-sector --

Mr. Khanna. Would it surprise you, sir, to know that the CHIPS Act, which calls for $15 billion of funding at the NSF -- and, actually, the budget that was passed, the Republican budget, actually cuts the NSF funding, going backwards from last year?

Mr. Evanina. I wasn't aware of that.

Mr. Khanna. Would you oppose that cut?

Mr. Evanina. Well, if that money went to facilitating security efforts in the --

Mr. Khanna. No, it's --

[Cross-talk.]

Mr. Evanina. -- then I would be for it.

Mr. Khanna. I mean, it just was a cut of -- I mean, the CHIPS Act says we've got to get to $15 billion. We gave them about $9.8 billion last year. I would've thought we'd go higher. It's actually going lower.

I'm not trying to score political points. I am just trying to say, we're going to

have a lot of fights over the budget; I would hope that the NSF and NIH are two places we don't have the fight.

And I'm hearing you, in your written testimony, say you think we should be increasing that funding, correct?

Mr. Evanina. We should be, as well as increasing funding for security of the -- what's coming out of the CHIPS and Science Act.

Mr. Khanna. I would just say this, Mr. Chairman. I have so much respect for you and, of course, for Vice Chair Representative Wittman and doing things together. I think that more important than just the hearings is actually the funding. That's what Congress does. And I hope on a bipartisan basis we could recommend, as the China Committee, to increase the NSF and NIH funding and take that out of the political theater we're going to have on the budget.

And I yield back.

RPTR GIORDANO

EDTR SECKMAN

[7:59 p.m.]

Chairman Gallagher. Gentleman yields back.

The select committee should be in charge of all funding decisions in the United States Congress.

Mr. LaHood is recognized for 5 minutes.

Mr. LaHood. Thank you, Mr. Chairman.

I want to thank all the witnesses for being here today.

President Xi Jinping has been quoted often advocating for China to have dominant global market power over core technologies and sectors, including artificial intelligence; semiconductors; critical minerals; renewable and new energy, such as solar and EV batteries. Of course this has been done through initiatives such as Made in China 2025 and the 14th 5-year plan.

Whether it through the heavily subsidized state-owned enterprises that obviously don't play by the same sets of rules and standards as their competitors or blatant attempts to steal IP and data collection and transfer requirements or forced joint ventures and partnerships with Chinese entities, the CCP appears to be willing to do whatever it takes to gain advantages anywhere it can.

Mr. Wolfe, you've talked about, quote, technological sovereignty and decreasing our reliance on China, especially when it comes to these critical technologies.

In your view, how much of our current problems we face on this issue stem from the United States generally getting in our own way through regulations and politics, et cetera, or do we really need to look at this sector by sector?

Mr. Wolfe. In some cases, it is sector by sector. But, writ large, I would say

that quantity of technologies is, in a form, its own quality. We want a million flowers to bloom. We want lots of startups. We want lots of competition, because that's how you get better and better technology.

That's what we had over the Russians during the Cold War I. Nobody bought any Russian products except for a Mig fighter jet and an AK-47. It was U.S. competitive products that won. So we want a million flowers to flourish, lots of technology, lots of competition.

As relates to the idea of technological sovereignty, this is really in two forms. The first is making sure that the companies that we are investing in and our existing strongest companies are not solely dependent on a single supplier. And, in many cases, as we've heard, whether it's batteries or certain other key components, China has been very strategic over the past decade-plus of securing the raw materials and metals and rare earth minerals to be able to not only capture them, but then assemble them and make the world dependent upon them.

So diversifying into Allied Nations is important. That's going to take time. It's a complex issue. That's number one.

The second piece of technological sovereignty is making sure that our peer country allies are actually sourcing and choosing American technologies. And there are lots of instances where I would see China actually making great headway in wanting to export their technology and successfully doing so.

And those countries are going to have to ask themselves a question: What kind of country do you want to be? Do you want to be one that is free and technologically sovereign and independent, or do you want to be one that is dependent on the CCP?

Mr. LaHood. Thank you for that.

You've also talked about the morality of doing business with China and the moral

dilemma of doing business with China. I'm wondering if you could define that or explain that a little bit more, and then give us some examples of where countries or entities have rejected the CCP based on that morality doctrine.

Mr. Wolfe. Well, I'll start with the latter, because it's really increasingly few and far between. And I'd like to see more of it.

Without naming names, there are celebrities, there are actors, there are entertainers, there are lots of people who understand the economic value of being able to sell into China. And I believe that's why many investors went in there over other the past decade, and rationally.

As it has become evident of the nefarious and insidious and suppressive means that the CCP has, people have to revisit that. And so, when you see an actor taking a knee and speaking in Mandarin for calling Taiwan a country, or you see athletes refusing to criticize foreign human rights injustices, it is great to want people to sit in the seats; it is great to want people in the theaters. It is great to want people in the arena sitting down.

But, as an influential American, you also have to be standing up for what makes us great, and that is our moral righteousness over the rest of the world, doing the right thing.

Mr. LaHood. Thank you.

I yield back.

Chairman Gallagher. Mr. Kim is recognized for 5 minutes.

Mr. Kim. Yeah. Thank you.

Thank you to the three of you for coming on out here today.

I want to actually just build on what my colleague was talking about. Mr. Khanna was talking about the CHIPS and Science Act, the funding of it.

I agree with you completely that, you know, we want to make sure that we're doing that funding, that we're funding that particular initiative.

But, Mr. Evanina, you said something. I think it was kind of in response to what he was getting at. Well, you talked about this as sort of -- you said something about the beginning of a bipartisan path or something of that nature. It sounded like you were saying that this could -- it's not only just about funding this particular initiative at this moment in time, but you were saying -- it sounded like you were saying that this should be a part of a broader trajectory. Is that correct?

Could you just -- could you elaborate on that?

Mr. Evanina. Congressman Kim, I do. And I believe that, 20 years from now, we'll look back at this particular CHIPS and Science Act as -- as the beginning of the new way forward to combat the CCP. As we talked about, the CCP does not have that Western view of bifurcation between government, private sector, and the corporate world; they are one.

Mr. Kim. Yeah.

Mr. Evanina. And then we look at it differently.

So I think, when you look at -- if we're going to compete with them in semiconductors and technology, we have to be more willing to look at, yes, our morals and values and our norms, but, also, what's the best way for America to finance our capabilities technologically to move forward, and that is with that public-private partnership.

Mr. Kim. Yeah. Thank you.

And, Ms. Gorman, I want to bring you in on this, because I was reading something in your remarks, and it sounded like -- you were talking about, like, there should be an iterative process, I think is the phrasing that you said.

So I guess I just want to ask: Do you agree with what he just said? Is there anything you'd like to build on?

Ms. Gorman. I do. And I think what -- what my colleague just said is that the CHIPS and Science Act is a start, and that means it can't be a one-time deal. This bipartisan achievement did make a dent in the decades of chronic underfunding from public R&D. But these technologies, if we know anything, are not static.

And, when the CHIPS and Science Act was -- was passed, even large language models were not what they are today.

Mr. Kim. Yeah.

Ms. Gorman. So we need a continuous iterative process where we evaluate, to the best of our ability, what are the critical technologies of the future -- of the next 5, 10, 15 years; where is China leading; where are we leading; where can we draw on our allies and partners, and write that into our -- our funding and into our public R&D programs.

Mr. Kim. Well, thank you for that.

And I think that that just -- I wanted to add just a dimension on top of what my colleague was talking about, because absolutely we need to fund this particular iteration, this particular effort that's in front of us.

But I really do hope that this is something that this committee can really dig into in terms of what role does investing in our own economy, investing in our own innovation play when it comes to this type of strategic global competition?

And that's something that I'll be -- look, I recognize we have differences here. When it comes to the CHIPS and Science Act, this committee voted along party lines. Every single Republican on this committee voted against the CHIPS and Science Act. Every Democrat voted for the CHIPS and Science Act. So I get it. We have some differences here.

But I really hope that we use and draw upon the -- the expertise in front of us to try to figure out what form of this, what way can we try to come up with some type of agreement and recognizing that it can't just be about trying to slow down China, trying to -- to raise concerns about what their practices are, but also about investing in our own economy and our own businesses, our own efforts.

And so I hope that -- actually, I wanted to just kind of use Mr. Wolfe's words, because I just thought it was really illustrative here. So, if you don't mind, I'd like to just quote you here. But you said: Americans must put our partisan differences aside to lead the globe in discovery and in influence. Congress can do this by quieting the shifting winds of annual scientific research funding and by affording academic institutions, small businesses, entrepreneurs, and investors the stability of compromise in service of the greater good.

So I just wanted to say I really appreciated the way in which you're framing that, and I hope that this committee can engage in that kind of capacity and lift up into that kind of way.

I want to just shift gears just for a final question.

Ms. Gorman, you -- we already talked a little bit about where AI is going. But, in particular, I've been -- something you said here, which is that you said: We should encourage -- we should encourage the United States to not emulate China's approach to innovation, but, instead, chart our own course.

And one part of this I've been engaged is about privacy enhancing technology, whether or not that's something we should try to invest in significantly as an alternative to the concerns that we have on how China is using AI.

Ms. Gorman. It is, and it's one of these areas where privacy enhancing technologies and privacy preserving AI currently are not the state of the art, and they do

require government investment to champion our values.

We are not going to suck up everyone's data, suck up everyone's DNA, and build the world's best DNA surveillance engine. But we do need to find a way to train AI systems drawing on the world's and on our data, and privacy enhancing technology is one way to unlock some of these discoveries -- to cure cancer.

In -- in breast cancer research, for example, there is an inability to train AI systems on mammography data that would unlock enormous potential in diagnostics for the simple reason is that -- for the simple reason that hospital systems don't share data with each other. Privacy enhancing technologies would allow us to do that in a way that prioritizes our values, and that's why we -- we launched initiative with the U.K. to build on these technologies.

Chairman Gallagher. Gentleman's time has expired.

Mr. Dunn is recognized for 5 minutes.

Mr. Dunn. Thank you very much, Mr. Chairman.

And I also want to extend my gratitude to the panel of witnesses for sharing your insights with us this evening.

And it's incumbent upon us in Congress to pave the path for American commercial enterprises to compete with China's rapid technological development.

As a doctor and a former officer in the Army, I am deeply concerned about the CCP's attempt to dominate the field of biotechnology, a field that has huge ramifications for our economy, our health, and our national security. We all know that the U.S. remains the world leader for now in biotechnology, despite the CCP's attempts to displace us.

Nonetheless, CCP firms like Beijing Genomics, the world's largest genetic research company, has a U.S. subsidiary called Complete Genomics. It is rapidly making inroads

in the United States marketplace for commercial genetic sequencing. More concerning, several of these firms, including BGI, have been implicated in human rights abuses, research with the PLA, and blatant disregard for patient privacy.

You may be familiar with the findings of a 2021 report by Reuters that showed China's BGI Group was using prenatal tests developed in collaboration with their military to collect genetic data on pregnant women. China captured the information of more than 8 million women.

Mr. Chairman, I'd like to introduce an article called "China's Gene Giant Harvest Data From Millions of Pregnant Women."

Chairman Gallagher. Without objection, so ordered.

[The information follows:]

******** COMMITTEE INSERT ********

Mr. Dunn. Thank you so much.

The BGI Group also sold millions of COVID-19 tests outside of China and offered sequencing services to numerous State governments in America despite intelligence community concerns.

Let me be really clear. We have to stop allowing CCP-affiliated firms to gain access to American genetic data. They will use any of this data it acquires to fuel their military modernization of biochemical weapons.

Mr. Chairman, I -- let's see. Okay. In a company statement, BGI Group said: BGI does not condone and would never be involved with human rights abuses.

I have a hard time choking that down, I'll be honest.

Mr. Chairman, do I have a second article I'd like to introduce. "Moderna Strikes a Deal to Develop mRNA Drugs in China."

Chairman Gallagher. Without objection.

[The information follows:]

******** COMMITTEE INSERT ********

Mr. Dunn. Thank you.

Given the Reuters report, I was troubled to hear this news from Moderna Pharmaceutical/Biotech Company based in Massachusetts. The opening paragraph of this article reads: Moderna struck a deal with Chinese officials to research, develop, and manufacture RNA medicines in China, despite rising tensions between our countries.

We cannot be dependent on the CCP for technologies and goods that impact our health. They have made it clear that they will use any leverage they have against United States and our allies. I believe we should consider banning others -- BGI and other CCP-affiliated biotech firms from our market.

I think we have to decouple our biotechnology and pharmaceutical industries from the CCP or risk our own health.

Mr. Evanina, would you agree that the U.S. Government should consider restricting market access for PRC biotech firms and restrict U.S. technology from flowing to PRC biotech?

Mr. Evanina. Mr. Congressman, I do agree that in general, but I think we have to be more aware of the intent of the Communist Party of China in acquiring that data, and I think BGI is a perfect example of what their nefarious intent was the last 5 years visibly during -- during COVID.

I think their aspect of Moderna also shows that partnership where I believe, similar to Ford, we need to have corporate leadership look beyond next quarter's earnings and profit to be able to more -- be more interested in an aspect of what I call national interests, that intersection between capitalism and national security. And I think that's where we look for Congress to lead that effort.

Mr. Dunn. Thank you very much.

Ms. Gorman, how serious is the PRC about competition in biotechnology, and how much money are they spending in this sector?

Ms. Gorman. Extremely serious. And, on the topic of BGI, you mentioned, sir, its U.S. subsidiary, Complete Genomics. I believe BGI's rise itself is a product of a failure of imagination to anticipate that biotechnology would be the competitive industry it is today.

CFIUS, the Committee on Foreign Investment in the U.S., actually gave its signoff back in 2012 for BGI to acquire Complete Genomics and fueled BGI's global rise.

So many of these technologies are being invented here, and China's --

Mr. Dunn. Since my time has already expired --

Ms. Gorman. -- strategy --

Mr. Dunn. -- can you just give us a number or a comparison of U.S. and their technology?

Ms. Gorman. I'm happy to -- I'm happy to -- to get back to you on that.

Mr. Dunn. Thank you very much.

Chairman Gallagher. Gentleman's time has expired.

Ms. Sherrill --

Mr. Dunn. Thank you, Mr. Chairman. I yield back.

Chairman Gallagher. Yep.

Ms. Sherrill, you are recognized for 5 minutes.

Ms. Sherrill. Thank you.

This is a fantastic discussion. I want to thank all the witnesses for coming here tonight to -- to discuss these issues with us. And I find it so fascinating, this discussion of how we are funding our research and development and where we put our funds because this is something I have long really been thinking about because I come from the State

that had Bell Labs.

And I can tell you that, as I go across northern New Jersey with some of the most innovative companies in the world, so many of the people working there come out of the Bell Labs system. So many of the technologies in optic lenses, et cetera, lasers, come out of the Bell Labs system.

And so, as we approach this, we -- I also come from a military background, and everyone loves a cliche there, and I find Wall Street's the same way. And something I always hear from my friends on Wall Street is: Government shouldn't pick winners and losers.

And I broadly get that, because we're not China. We're not going to manage our economy. And we've seen how devastating that is in China. But we are also looking at how we fund our economy in a way that makes us competitive, in a way that helps our -- our companies compete.

And I think, Mr. Wolfe, you were talking about some of that capital going to places that then allow a less risky opportunity for private funding to come in. And I wonder if you can talk a little bit about how government makes those decisions and what -- and utilizes our capital to the best ability to fund innovation?

Mr. Wolfe. You know, it's interesting. The Bell Labs example ultimately came from government intervention in the monopoly and forcing them to invest. Same sort of thing with Xerox and Xerox PARC.

Ultimately, in both of those cases, the invention of the transistor in 1948, they were not the ones to ultimately create the integrated circuit, like Intel and Fairchild and others ultimately did. Same thing with Xerox PARC. You know, it was a great R&D and a vestige to innovation in Silicon Valley, but it was ultimately Steve Jobs and Bill Gates that came in and effectively stole the graphic user interface and created modern PCs.

So I think that there is a role of the private sector. There is a role, again, in basic science.

I'm actually struck on the idea of biotech. This is a huge opportunity where NIH funding, NSF funding goes into basic science, particularly around biotech. You look at the innovation that we've had in CRISPR. You had Jennifer Doudna out west ultimately winning a Nobel Prize. You had Feng Zhang, who is a Chinese scientist now in the U.S. at Broad and MIT, and we've started companies around him. And we want him here. We want him developing those kinds of technologies.

In biotech in particular, I think that this is an area that requires a lot of attention, and I really like the comments that were just made. China has something, or lacks something, rather, that we have. And, because of that, they are advantaged. And the thing that they lack is the ethics and regulatory apparatus that we have. And that ethics and regulator apparatus can slow down biotech. And so, actually, I think that there is an opportunity here to fund the basic science, make sure that biotech gets to market.

They also have another advantage which was named, which was the indifference to human rights. Now, there has been over the recent months a huge fad and excitement around the diet drugs. I'm sure we all know people that are taking these. Well, imagine in a year or two or five, that there is a cure for Alzheimer's. Everybody would be giving it to their mother, et cetera.

But what if we found out that that was tested on a million Uyghurs? What would be the morality of that? And I think that it's really important that we make sure we compete.

When I grew up, I grew up in a Jewish household, and I had two words that I heard all the time: Never again.

It is happening again. And, as people have said, indifference to injustice is the

gate to hell. We should not be indifferent about the human rights abuses that are happening there. We should have more competitive science here. We should fund it, and you should allow the private market to commercialize it.

Ms. Sherrill. I really thank you for bringing that up, because I think that is front of mind. And we started off this committee at the beginning of our hearings hearing about what was going on with the Uyghurs. And I think it was in such sharp contrast to what America offers the world and our values and how important that is.

And so, as we're taking a look there, I can't help but be a little bit concerned, because we've basically looked at the China 2025 plan and said: We're going to compete here, here, and here. And, yet, I think what strikes me about American innovation and, as you say, we've got to arrive there first and make sure we're outcompeting China, I think American innovation can take us in places far beyond China 2025. Those aren't simply the places -- and I'm not sure that Chinese innovation at this point will take them far beyond that.

And so how do we make sure that we are doing the broadest possible innovation here? And I wonder, just very quickly, because my time is about to expire, Ms. Gorman, you've been so interesting in talking about how some of what we're going to set up and what we can do in things like the CHIPS and Science Act and things like the National Quantum Initiative Act, which is up for reauthorization -- how are even small investments so critical in spurring private-sector innovation and emerging tech important to our competition with the CCP?

Ms. Gorman. I think it starts by recognizing the role that the government plays; that, yes, we absolutely need a vibrant technology ecosystem with any idea, any garage, any startup company that Lux Capital works with, for example.

But we also need to recognize that sometimes there are investments that might

be even too risky for venture capitalists, and that's where government steps in.

And my first job was at Bell Labs.

Ms. Sherrill. Oh, that's fantastic. A great example.

Thank you, Mr. Chairman, and I yield back.

Chairman Gallagher. Thank you.

Mrs. Steel is recognized for 5 minutes.

Mrs. Steel. Thank you, Mr. Chairman.

And thank you to all the witnesses tonight.

And I just want to say just one thing, because, for -- we are talking about AIs, and we are talking about digital trade and other stuff, that I wish that Congressman Kim and Moulton is -- are here to hear, because our R&D tax credits been -- actually expired. That's really important for all these startup companies or other companies so they can get the tax credit. That passed in the Ways and Means Committee bipartisan way.

So we really cannot attack on the other side of the aisle or Republican versus Democrat. We can work together. That's why we are here on this committee. We wanted to work together. Our adversaries here are not each other, but CCP. So that's what we heard from both sides of leaders, Kevin -- our Speaker, Kevin McCarthy, and Leader Hakeem Jeffries.

Having said that, after hearing from our witnesses today, it is alarming that the 80 percent of American adults have had all of their personal data stolen by the CCP and the other 20 percent, most of their personal data.

This is on the top of their effort to control all or most aspects of global supply chain, including the use of launching data tracking system at the ports and mining of critical rare minerals.

California companies are on the front line of CCP attacks. As far back as 2018,

the FBI released that the CCP was targeting a variety of California tech companies, including those involved in artificial intelligence, robotics, and semiconductors.

As the United States looks to spread our global influence and set the rules of the road on emerging technologies, it is important to recognize the role that smart trade policies can have. For example, our most recent comprehensive trade agreement, USMCA, included important protection for IP rights and the first ever digital trade chapter, both of which will help promote tech innovation and economic growth.

Mr. Evanina, as the digital economy grows, how can the United States take a leading role in shaping the rules of the road, and how can we lead on digital trade?

What rules are needed to protect our competitive edge?

Especially, how can the United States push back on Chinese digital model in third countries that includes concerning provisions like forced data localization?

And what risks are posed if U.S. companies must store data on servers manufactured in Chinese companies like Huawei?

Mr. Evanina. Thank you, Congresswoman. That's a very complicated question. I'll do my best to answer it. But I think you hit on multitude of really important issues that our private sector is dealing with right now.

First of all, the idea that China is going to have analogous morals, ethics, values, rule of law like we do is not going to happen. So their issue with the Uyghurs and their inability to have regulations and care about human element will promulgate their AI and their nefarious activities.

Secondly, we have to know as a Nation -- whether it be with Lux Capital or anybody who is investing, when you contract with a company from China, you are going to lose all of your third-party data. Your data, it's part of the contract. And you have to be okay with it or just understand that. So, understanding the lexicon of dealing with

China is issue number one.

Number two, also, from a regulatory perspective, our regulatory agencies here in the U.S. have to understand the complexities of moving money from here to China and vice versa and how that impacts third-party data as well as privacy.

Mrs. Steel. Thank you.

Another area in which the United States must show leadership is in protecting intellectual property rights. The implication of CCP IP theft, which, according to your testimony, is estimated to cost Americans between $300 billion to $600 billion per year, are profound.

Through coercion and theft, the CCP is attempting to undermine our competitive edge in emerging technologies. We must push back on these malign practices, yet it seems that our administration -- it's not working hard enough to protect our national interests. Maybe they are, but, you know, we don't see that.

Look no further than its decision to agree to a waiver of the IP rights for mRNA vaccines at the World Trade Organization.

Can you explain the dangers here and ways the U.S. must do a better job on protecting IP internationally?

Mr. Evanina. Yeah. Congresswoman --

Chairman Gallagher. Very quickly.

Mr. Evanina. -- I think IP issues are a tremendous issue right now, especially with respect to the theft. And I'm going to juxtapose a little bit of what my colleague, Mr. Wolfe, talked about, with respect to patents.

We have a very archaic patent system here in the U.S. Oftentimes China will get involved in that research development process and steal that patent before we even get through the process, develop it in China, and sell it on the world market for 30 cents on

the dollar.

So oftentimes we are late to the game. Even though that ideation and technological know-how came from the U.S., it's being sold worldwide before we even get it through the patent process.

Mrs. Steel. Thank you so much.

I want to ask one other question, but it seems that my time has been expired, so I will yield back.

Chairman Gallagher. Always welcome for the record.

Ms. Stevens is recognized for 5 minutes.

Ms. Stevens. Great. Thanks.

Ms. Gorman, in your testimony, you talked about establishing a national technology competitiveness analytic center or analysis center.

What's the importance of this? Why do we want to do this?

Ms. Gorman. This is important because we need to continuously invest in our competitive advantages, and we can't do that without knowing --

Ms. Stevens. And would this allow us to monitor --

Ms. Gorman. -- what they are.

Ms. Stevens. -- across --

Ms. Gorman. Exactly. We -- many of the conversations we're having today about chokepoint technologies, about China's lead in certain areas, really there isn't a good data set on -- on where they're more competitive, where U.S. investment flows are really enabling strategic industries, supply chain mappings on where we have an advantage and that might be able to turn into an export control like with semiconductors. We're flying blind, and such an analysis center would give us the measurement tools to fix our policy.

Ms. Stevens. So this would have woken us up to the semiconductor crisis that we fell into potentially earlier and allowed us to hone in, similar to what we're seeing on solar and even what we're living through with EV battery manufacturing technology and production right now. And certainly, coming from Michigan, I know that autonomous vehicle technology is somewhere we've got to lead, but it sometimes feels like we're walking around with a blindfold.

And then we've got this AI situation going on. And, last month, I wrote the State Department, and I asked them about convening international actors to put into place these guardrails, particularly as our ranking member showcased some of the nefarious ways in which the CCP is using AI.

And, Ms. Gorman, I'm just wondering if you could potentially chime in, maybe alongside Mr. Evanina, around global oversight of other technology areas as we're seeing the concerns with AI and ways in which we can bring global partners together.

Ms. Gorman. Yeah. Certainly -- certainly AI, particularly when it comes to catastrophic risk, bioincidents, AI weapons, the risk of AI-enabled warfare getting out of control, these are the issues that really do need to be top of mind for -- for our international partners.

I think, in the biotechnology arena, how we responsibly innovate on -- on human subjects has -- as technology takes off and innovation takes off and biotechnology, what's the responsible way of collecting and storing data? Do we need privacy enhancing technologies to do that?

Ms. Stevens. We know rare earths aren't necessarily a technology, but they go into all of our technology. So would you include them in this as well?

And it's probably a way for us to work with our allies in terms of coordinating on trade and dominance in this space.

Would you agree, Mr. Evanina?

Mr. Evanina. Congresswoman, I would agree.

Also, I think it's important for this committee and the U.S. corporate industry to understand that it's naive to think that we would have any kind of agreement on any of these issues with the Communist Party of China.

Now, I think, to your point of having the global consensus, getting on more standards boards, understanding the complexity, and having a global aspect surrounding China might work. But there is no way that they're going to agree to anything that the United States comes to the forefront with, with respect to any kind of AI framework or roadblocks.

Ms. Stevens. So this is a place where the -- that it's very adversarial? It's just that this is how we have to focus on that. And I think focus is also a key word here, is that we need focus and discipline and a plan. And, being sort of laissez-faire and maybe a little drunk from the trough on occasion coming into this century with really all the great innovation and proliferated technologies, which we can celebrate emerged here -- and, Mr. Wolfe, I know, given your vast investment experience -- and certainly we so applaud your personal narrative, which you were generous to share.

We've got this other existential threat going on that's tied to technology. I appreciate the biotech conversation, but climate change is an area where we're -- we've moved aggressively to tackle it with what was dubbed the Inflation Reduction Act and some of the critical investments for consumers and for workers and businesses.

But how else do you see the United States' leadership role in addressing climate change, whether we can bring along partner countries or not in terms of addressing what we need to do for climate change?

Mr. Wolfe. You know, the biggest issue, which I think nobody is really focusing

on -- I know we -- you have a lot of talk about AI and biotech and quantum -- is nuclear.

Ms. Stevens. We love quantum.

Mr. Wolfe. Yeah. I'm quite skeptical personally. We can talk about that maybe offline.

Ms. Stevens. Absolutely.

Mr. Wolfe. With fraud, but we'll get there, you know --

Ms. Stevens. Okay.

Mr. Wolfe. -- in the future.

Nuclear, not about proliferation, not about weapons; about reactors. And this is something that I think is very important. We used to have 104 domestic reactors here. If you are an environmentalist and you care about the climate and you want zero-carbon, large-base load power, you should want nuclear.

Now, I've rebranded it elemental energy. Why? Everybody loves the elements. You love sun. You love wind. You love hydro. You love rocks. These rocks are uranium. And, if you release them, you get this great exothermic reaction, and it produces clean energy. That's nuclear.

Now --

Ms. Stevens. Well, I'm here to talk to you about nuclear offline, but I'm over my time.

And, with that, Mr. Chair, I yield back. Thanks.

Chairman Gallagher. That was an explosive exchange.

Mr. Barr is recognized for 5 minutes.

Mr. Barr. Thank you, Mr. Chairman.

Great hearing. And some taxpayer funding of basic science makes sense to me. I represent the University of Kentucky. They have a robust research enterprise financed,

in part, by Federal grants, the National Institutes of Health, the National Science Foundation, EPSCoR, other programs.

But we should not allow a modest government role in funding basic science mutate into a full-blown state-directed, deficit-financed, government-subsidized industrial policy that attempts to mimic or imitate China's Communist central planning model, a model that I would argue is actually China's Achilles heel.

After all, the reason China has to resort to thefts of intellectual property, the reason why China is forcing tech transfers through breaking the rules is that they're Communists. And Communists break the rules. And Communists don't have innovators. They don't have entrepreneurs, because there's no -- there's no organic capital formation.

And there is a misallocation of resources when the central government in Beijing is forcing a civil-military fusion. There is a misallocation of resources when incentives don't work, and entrepreneurs lose their private property, because they don't believe in private property.

So I would just caution, as we talk about the competition between United States and China on -- on capital investment into technology, to not realize that we have a natural competitive advantage, and that is that we are capitalists and that we have a free enterprise system and the deepest, most liquid capital markets in the world that finances a lot of this technology development.

Now, we need to protect our intellectual property better, but we have the advantage naturally because we have a superior system.

Mr. Wolfe, can you describe for this committee the differences in the ways investments in advanced and emerging technologies occur in the United States versus the PRC?

Mr. Wolfe. You know, it's a messy system here, and that messiness is its beauty. We want -- there, it's a directed system. The state says: This is what we're going to develop, or we're going to steal and we're going to build it.

Here, we want free, undirected research. You want pure experimentation. You want irreverent thinkers, people reaching into each other's other disciplines and coming up with big ideas. And then you have the private market with the greedy incentive to want to make money and commercialize these technologies.

It starts with a foundation of undirected basic science research, people that can tinker and experiment and come up with ideas, be criticized by their ego-driven peer competitors and scientific review. And then that gets published, and people like us spot it and say: We want to start a company with that. We think that we can build the next Genentech or the next Google.

And so the free market should be left to do its thing. The state-directed is an inferior model. We should not copy China. China is trying to copy us, and they don't have the culture to be able to do it.

Mr. Barr. Is the risk that, if we go down the road of more and more taxpayer-financed science, that that risks displacing the vibrancy of the free-enterprise capital markets and that that real innovative part -- now, I believe in the commercialization that comes out of -- of IP that comes out of universities, taxpayer funded. But, on the whole, should we remove the impediments to our capital markets so that those -- that venture capital that private equity can go into these startups to really produce that innovative thinking that produces the advanced technology that gives us that competitive edge?

Mr. Wolfe. Definitely. Capital markets should be as free as possible so that people can take risks, lose their money if they're wrong or unlucky, make money if they're

right or lucky. We do want lots of basic science funding because the free market won't fund that. We won't fund undirected research. That's a national asset.

We want to invest in that asset so that it can then be transferred to the private equity firms, the public equity firms, the venture capitalists like us, who have a great motivation to want to turn that into profit.

Mr. Barr. Are there current -- Mr. Wolfe, are there currently ways where the U.S. Government, either through regulation or law, is currently hindering private-sector investments in advanced technologies?

Mr. Wolfe. I believe so, and I don't believe that it's intentional. But the unintended consequence of dealing with the last crisis -- you look at Sarbanes-Oxley and other things that look at these things and say: How do we prevent that from happening again -- end up slowing down the next wave and the next boom?

So, the more regulation that we have on capital markets trying to protect what happened in the past, which is unlikely to repeat itself, the more we hinder innovation.

Mr. Barr. What were your thoughts about -- on Chinese companies listed on U.S. exchanges seeking to crowd out U.S. firms in the marketplace?

Mr. Wolfe. I haven't really seen it in specific instances. I can do a little bit more research to see where that's been a zero-sum phenomenon. Again, we want free capital markets. We want people to come here to be able to build their companies and capitalize them on the markets. We want the free flow of capital coming into United States. We don't want it going into the CCP.

Mr. Barr. Great. Thank you for your testimony.

And, Mr. Chairman, thank you for the hearing. I yield back.

Chairman Gallagher. Mr. Auchincloss?

Mr. Auchincloss. Thank you, Chairman.

I'd like to start by submitting for the record a page from the China Task Force report that the chairman of the Foreign Affairs Committee, Congressman McCaul, issued last Congress. And this section from the China Task Force report recommends doubling basic research funding over the next 10 years. And I -- I welcome that recommendation, and it's a good one.

[The information follows:]

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Mr. Auchincloss. That same Congress, both Democrats and Republicans, voted for the CHIPS and Science Act, which would also substantially increase funding for basic research over the next 10 years.

So, with our voice and our vote, Republicans and Democrats have both said that we should be increasing funding for basic research over the next decade. And, yet, it's with great regret and disappointment that we're seeing the appropriations reports from this Congress cut -- as my colleague, Congressman Khanna, laid out so compellingly, cut our funding for basic research.

My greatest concern -- and we've heard here from you in particular, Mr. Evanina, compellingly about the theft of our innovation. But, frankly, my greatest concern is that, if we stay on this trajectory, we're not going to have anything left to steal in a decade. We need to fund our basic research; not cut it as we face great power competition.

In this vein for you, Mr. Wolfe, we heard from the previous -- the previous member, my friend from Kentucky, this analogy with taxpayer-funded basic research funding to sort of crowding out private investment. And this is a well-known economic theory where public subsidies can sometimes crowd out private investment. And I would submit that this is an incorrect understanding of how basic research funding works.

It's not zero sum; it's positive sum. The more we do, the more spillovers there are, and the greater the surface area for commercialization and innovation.

Can you talk a little bit from your experience about how undirected, curiosity-driven, peer-reviewed basic research has become the seed corn for innovation now that is game-changing and life-improving?

Mr. Wolfe. Look, it led to, in biotech, discovery of CRISPR and gene therapies.

It led to the invention and commercialization of semiconductor, which now is geopolitically contested. It led to breakthroughs in material science for composites for defense.

Mr. Auchincloss. And, to be clear, the scientists who were first working on these technologies, did they have a specific outcome in mind? Were they linear? Were they trying to derisk some future product, or were they curiosity-driven and simply loved to explore?

Mr. Wolfe. Mostly the latter, although I would qualify that they were ego-driven. Scientists want to be famous. They want to beat their peers.

Mr. Auchincloss. Of course.

Mr. Wolfe. But they are not driven by the profit motive.

Mr. Auchincloss. Now, does it pay, though, to be ego-driven or curiosity-driven, or do you need some taxpayer support to do that?

Mr. Wolfe. You need taxpayer support.

Mr. Auchincloss. Thank you.

Can we continue, Mr. Wolfe, on precision manufacturing? As we consider ways to derisk critical supply chains, how can we build on the incentives that we've created for precision manufacturing in semiconductors, aerospace, defense, biotech, and other critical sectors?

Mr. Wolfe. I'll give you one specifically in defense, because I think it's critical. There's about 3,000 mom-and-pop shops, which basically are today's freedom forge, the ability to manufacture critical components for aerospace and defense companies, the cutting-edge one from SpaceX to Blue Origin to Lockheed and Raytheon and beyond.

We had an entrepreneur who actually said: You know, why don't we roll up some of these groups? His name is Chris Power. He's a great patriot. He's an

Australian, came to the U.S., started a company called Hadrian in California. And we're an investor, as are some other VCs. And he has one mission, which is: I want to build the machine that builds the machines.

He wants to have a cutting-edge, autonomous factory, and he's building it. And the pipeline and the -- of customer demand is off the charts. I'm grateful for entrepreneurs like that who identified a problem, and he is recreating that new generation of freedom's forge.

I think it's critical for our competitiveness and for the defense industry.

Mr. Auchincloss. Thank you.

I'll close with you, Ms. Gorman. You had a very short segment in your written testimony -- and I appreciate that you listed out all the recommendations. That's always helpful -- where you talked about a human genome-style project for democracies as we try to both contest CCP malevolent actions regarding gene editing but also prepare our own way for what I think is going to be the defining technology of the 21st century, which is gene editing.

Speak more to that, because it was a brief segment.

Ms. Gorman. Well, we face this -- in some sense, a competitive disadvantage, because the PRC has no bones about collecting genetic information on the entire world whereas, as democracies, we don't do that. We need to protect that information.

And so, when we talk about leveraging our competitive advantages of allies and partners, one thing that we can do is build these -- these grand international experiments like the human genome project in biotechnology, using biodata, and do that in a secure and privacy enhancing way.

Mr. Auchincloss. Similar to how we did CERN with the particle physics or how we do the telescopes internationally, we could do something like that for -- for --

Ms. Gorman. Exactly. For -- for liberal democracies and set a standard for what responsible innovation looks like.

Mr. Auchincloss. Thank you.

I yield back, Chairman.

Chairman Gallagher. Thank you.

Mrs. Hinson is recognized.

Mrs. Hinson. Thank you, Mr. Chairman.

Good evening, witnesses. Many of the conversations we've already had tonight are extremely relevant to the work that this committee has been doing and has already issued reports on, but I want to highlight just a couple more tonight and dive a little bit deeper.

The critical technologies that our private sector really produces and develops are essential to national security, but we are hindering our own ability to innovate when there are those blatant thefts happening by the PRC on our IP. Those efforts undercut our industry, as has already been discussed, and really roadblock us from being able to lead in these fields.

I want to hit on one company in particular: Huawei. U.S. patent grants for Huawei are at over 300 per year, among the most to receive U.S. patents, even ahead of some of our very own largest tech companies here in the U.S. It's extremely concerning to me that a company like Huawei, which is on our Export Administration Regulations Designated Entity List, continues to expand its use of our patent system.

So my first question, Mr. Wolfe: Do you see actions like this from Huawei and other CCP-affiliated companies as a deliberate strategy to utilize our U.S. patent system?

Mr. Wolfe. I think it's a tactic that's deployed, and whether it's intentionally deliberate and combination of profit and market-share seeking, I'm not sure, but I do see

it as a threat.

Mrs. Hinson. Have you seen any companies that you've looked to invest in be overrun by Huawei in its efforts to get those patents?

Mr. Wolfe. We have not.

Mrs. Hinson. Okay. Mr. Evanina, my next question for you: We obviously see the risks that U.S. companies are continuing to take when looking to work within China or with Chinese businesses. And you spoke to this a little bit earlier, but it's inherent that the PRC has purposefully developed domestic laws to compel companies to share their IP and their data with the government in order to be able to operate in China.

Many of the hardware and the software manufactures that our government and security systems rely on, frankly, have unacceptable exposure to China in my mind, from either the source code sharing with the PRC in exchange for that market access or, as we've seen, down to logos being copied and pasted, blatant manufacturing theft here.

Would you consider this a gap in our ability to really monitor critical supply chains?

How can we better enforce the laws that we have on the books that really can promote vendors with a strong supply chain security here and people who are maybe even refusing to share that source code with the CCP?

Mr. Evanina. Thanks, Congresswoman.

I think you get to a point on your questioning that I think, with respect to juxtaposing Huawei into these current questions, I think, when you look at the requirement for general counsels of companies and CIOs and CISOs, to really understand the complexity of these Chinese laws that have been enacted since 2017, how they impact not only their business model for doing business, supply chain, but their vendors' supply chain.

Oftentimes they might say: Oh, well, it's not our data.

Well, it is your data because you're allowing your supply chain vendor into your data. And that data is now obligated to go from that Chinese-based company or partner to the Communist Party of China or the Ministry of State Security at their beck and call. And I think that's oftentimes a criticality of the general counsel to understand it before they enter into an agreement with a company from China.

Mrs. Hinson. It's the onion. Peel back the layers of the union, and then you get there, right?

Mr. Evanina. [Nonverbal response.]

Mrs. Hinson. My last question for Ms. Gorman: Specific to AI, I know we've talked about that a little bit tonight. Generative AI has a wealth of attention right now. And I know we're -- many conversations are happening here in Congress about what types of programs we need to be looking at and, specifically, what types of programs our adversaries are investing in.

And, when we look at the strong emphasis that China has on dominating the AI space, particularly with the Beijing Academy's AI goal of being the top development institution for these technologies, what do you see as the major implications here?

What role can this committee have for developing policy in this space?

And do you see China as taking the role and spreading the surveillance state globally as a major threat and concern?

Ms. Gorman. I do. It's -- it's certainly a major threat and concern. It's happening, led by companies like Huawei, where AI applications are being built on top of 5G infrastructure. And these digital technology stacks build on each other. And so competitive advantages and market dominance in one layer leads to further dominance in the next layers up, including the AI applications.

And so, when it comes to generative AI, China is very interested in, in some sense, catching up with the United States on large language models like the ChatGPTs and the Midjourneys and the DALL-Es that have taken the world by storm.

China is also hampered by the fact that it can't scrape all the data in the world because it includes mentions of the Chinese Communist Party --

Mrs. Hinson. Right. So they're restricted --

Ms. Gorman. -- are --

Mrs. Hinson. -- because of their own restrictions?

Ms. Gorman. -- some -- our openness is really an advantage. But I think one thing this committee could do and that doesn't get enough attention is, beyond just the text bots and the chat bots, using generative AI in all areas of science to enable scientists' discovery in medicine, in health, in energy, this is all data as well.

And so I think that's a -- really an open sky area that our system is ripe to -- to explore.

Mrs. Hinson. Thank you.

I yield back, Mr. Chair.

Chairman Gallagher. Ms. Brown is recognized for 5 minutes.

Ms. Brown. Thank you, Chairman Gallagher and Ranking Member Krishnamoorthi.

Thank you to our witnesses for the panel for being here today. This has been a very fruitful discussion about the technological challenges and opportunities we face in an era of 21st century superpowers competition.

Headquartered in Ohio's 11th Congressional District is the Cleveland Clinic, a world leader in research and development on everything from new pathogens to patient care, from cancer to cardiovascular disease. This cutting-edge research would not be

possible without a steady supply of medical devices, PPE, pharmaceuticals, and other crucial supplies.

The People's Republic of China is currently one of the largest providers of these resources on which we rely. During the beginning stages of the COVID-19 pandemic, we were acutely aware of the shortage of medical supplies like PPE, which we saw being hoarded or otherwise impacted by import-export issues coming from China.

So, Ms. Gorman, how dependent is the U.S. biomedical industry on the supply chain from China on everything from PPE to cancer drugs, and what critical components or technologies are being sourced from China?

Ms. Gorman. I think the answer, as COVID-19 showed us, is way too dependent. There are MRI contrast agents that were being sourced and hit bottlenecks, and many of the technologies you mentioned.

And I would also step back and say that this is the conversation around derisking. We've talked a lot about decoupling from military civil fusion. And I think, in Washington, there's a consensus on the need for this kind of derisking.

Around -- in capitals around the world, such as our allies and partners in Europe, this very dependency in biotechnology and other supply chain areas, that has been exposed and I think has really led our allies and partners also to see that, in these critical areas, we cannot depend on an autocratic rival.

And so, to plug our analysis center recommendation, that this is the type of work that we really need to do, to understand where are we truly vulnerable, where are our allies and partners vulnerable, and how can we patch these gaps and derisk our supply chains to remove those dependencies.

Ms. Brown. So, to follow up, how is the Biden administration incentivizing the domestic production of critical biomedical supplies and technologies to reduce our

reliance on imports from China?

Ms. Gorman. The -- I think the national bioeconomy executive order is an incredible start, with also economic revitalization and workforce implications as well.

Ms. Brown. Thank you.

And last question: How can we work with our partners and allies to create alternate -- alternative sources for critical biomedical supplies?

Ms. Gorman. I think we need to double down on these initiatives through initiatives like the Quad and the Trade and Technology Council with Europe, and -- and build out these human genome-style projects, understand where we have these vulnerabilities, and which allies and partners we really need to bring into the table to fill those gaps, because each technology area is going to have a different answer for -- in that supply chain puzzle.

Ms. Brown. Okay. Well, thank you for that, Ms. Gorman.

And I would follow up by saying this is why legislation like my bipartisan Critical Supply Chain Commission Act, which would pull together a nonpartisan commission to look at how to strategically strengthen our country's supply chain, particularly as it relates to our healthcare and biotechnology industries. As we have seen throughout this hearing, it is so important.

So I look forward to the continued work with this committee and what we will do in this space.

And, with that, Mr. Chairman, I yield back the balance of my time.

Chairman Gallagher. Thank you, Ms. Brown.

Mr. Gimenez?

Mr. Gimenez. Thank you, Mr. Chairman.

Mr. Evanina, seeing that the Communist Chinese Party dictates that every

company must have ties, must share their information with the PLA, would it be fair to say that -- that Americans investing in any company in China are actually helping strengthen the People's Liberation Army?

Mr. Evanina. I think it's fair to say, to some aspect of that, I think it's an awareness issue that, if you were investing private equity, venture capital, or big money, that your third-party data and you're going to help them. And, as we talked earlier in this hearing, the military-civil aspect, there is no bifurcation in China. Every dollar spent for a civilian effort is also a military effort in China, so you have to be aware of that.

Mr. Gimenez. Fair enough. I believe that also.

Mr. Wolfe, it seems to me you have a very strong moral compass and that your investment decisions are based on that moral compass and what's right, what's wrong, what's ethical, what's in the best interests of the United States, et cetera.

Are you the exception, or are you the rule?

Mr. Wolfe. I'd like to think that there's a growing cohort of people that think that markets can exist with morality, so I hope we're one of many.

Mr. Gimenez. Maybe one of it. But you -- still, are you the exception, or still the rule? Are you the rule, or are you still the exception?

Mr. Wolfe. I'd like to believe we're becoming the rule.

Mr. Gimenez. Fair enough.

Well, and that kind of leads me to where my colleague, you know, Congressman Wittman, was going about regulations. And, you know, I know that the American people have got -- have had a benefit from the price -- the cheap price of Chinese goods and et cetera.

But I'm -- I put to you that the sweetness of the cheap price or low price is going to be overcome by the sourness of loss of freedom, and that -- you know, I would hope

that this committee would do everything in its power for the United States to start to decouple from the United States -- I mean -- sorry -- from China, because every single dollar that we spend or invest in China eventually goes to enhancing the capabilities of the PLA. And the Chinese intentions with the PLA are to dominate the world through the PLA and also through economically and through the PLA. And I certainly don't want to live in that world.

In regards to IA, Ms. Gorman, you said that -- that, you know, you thought that we should begin some kind of a negotiation with China, put some guardrails because of the danger of -- of, you know, AI and military purposes.

I -- I'm going to disagree with you in terms of negotiating with them. I think the only way that we can put guardrails on the military applications of artificial intelligence is that we're always dominant in artificial intelligence because, if we're not, that's the one way that we can deter the use of that for monovalent purposes by the CCP -- if they ever get to be dominant in that area, I'm sorry, but I don't -- I don't trust their intentions.

What are your comments on that?

Ms. Gorman. I agree that competitiveness is certainly the -- the first choice here and our option of first resort. I am skeptical of our ability to maintain such a sizeable lead such that the threat of autonomous weapons coming out of the PRC would be fully neutralized and fully deterrable.

And that's why it isn't necessarily just about us going over to China and making these entreaties but leading international coalitions to set the rules of the road on -- on AI weapons.

Mr. Gimenez. Yeah, but, looking at their history of actually violating every single rule, and whatever -- whenever it suits them, they -- they'll cheat, they will steal, and they will use everything in their power to exert their dominance, I just -- I just don't have much

faith in that with working with -- with the CCP.

Look, I guess I'm -- I'm actually a pretty optimistic guy, all right? But the -- you know, the CCP, if there is leading -- is leading their country not into 2049; they're leading their country into 1984 as we speak. And, if we allow the CCP to dominate the world, they'll lead the rest of the world into 1984 also. And I certainly don't want my children or grandchildren to live in a world where -- an Orwellian world like 1984.

Thank you, and I yield back.

Chairman Gallagher. Thank you.

And, finally, Mr. Newhouse.

Mr. Newhouse. Thank you, Mr. Chairman, for letting me bat cleanup. Thank you to our witnesses.

Mr. Wolfe, it was a pleasure to meet you this afternoon just for a few minutes. And, as Mr. Gimenez said, I too admire your not-profit-over-principle kind of philosophy.

In my district, we have a large nuclear and certainly a Department of Energy presence. We have the Hanford Nuclear Reservation. We have the Pacific Northwest National Laboratory. And I've got to say that the scientists that research and operate these massive facilities take very seriously the national security implications of nuclear energy and truly do respect the intellectual property rights.

In numerous cases, though, I would say China does not share those same kinds of priorities. One example is with their interaction with the U.S.-based firm Westinghouse Electric. I'm sure you're all familiar with that, certainly one of our world's leading producers of large components for nuclear power.

Mr. Wolfe, tell me what you think about China's nuclear energy business practices. And, if they're concerning to you, how can -- how would you suggest that Congress could prevent these kinds of actions in the future?

Mr. Wolfe. I'm very glad you raised this.

First of all, huge admirer of your State. We've had great success building a company that played a role there at Hanford and ultimately in Fukushima called Kurion that cleaned up nuclear waste, great American scientists and entrepreneurs that did that.

Nuclear, I think is -- is critical, and not, again, for proliferation but nuclear reactors. I don't think people really appreciate this. And I know, as we said earlier, we spoke about AI and biotech and quantum.

I think a vector or spotlight should be on nuclear, because I think it's really serious, and here is why: U.S. went from 104 to 93 reactors. We're down 10 percent. China went from 2 to 25 to 55, and they're on their way to 150. Five percent of their electricity is produced by nuclear. It will be 20, which approaches ours, but it will be a much larger population.

But that's not what concerns me. What concerns me is they're beginning to export the technology, and not for nuclear proliferation but for creating dependency. You think about all of the countries on the coasts of the African Continent, all of the countries in South America and Central America. And the reason, as was said earlier by Congressman, that the idea that something is cheaper sometimes makes it more attractive.

The Georgia plant that was done in nuclear here in the U.S. recently, $25 billion, that's about 11.5, $12 billion or so per gigawatt. China is producing nuclear for $2 billion a gigawatt. So that's a huge contrast. If you're a foreign country, China could easily come in and say: We will build it for you. We'll finance it for you. And then, by the way, we've got you hooked for the next few decades on dependency on fuel and maintenance, et cetera.

From there, you can imagine -- and I'm speculating future, where you're

proximate to seawater, you can do desalination. You've got water resources and water wars. China is already doing that in Pakistan.

I think we have to get our act together on helping advance entrepreneurship, free market enterprise in nuclear. Again, I call it elemental energy, but this is an area that we should dominate. And, as you noted with Westinghouse, the AP1000 and many other reactors with a lot of other history, these should be the ones that the world is buying -- not Chinese nuclear reactors.

[9:00 p.m.]

Mr. Newhouse. I couldn't agree more. Thank you very much.

I wanted to talk a little bit about critical minerals. And Ms. Gorman or maybe Mr. Evanina could have a response to this question.

Certainly, we know, the United States, we were once a major producer of critical minerals required for semiconductors. Unfortunately, China is now the leading producer, especially for two, gallium and germanium.

In the ongoing competition for semiconductor supply-chain resiliency, the U.S., the Netherlands, and Japan introduced export controls banning Chinese companies from buying advanced chips last year. In kind of a tit-for-tat response, China recently announced that they're placing expert controls on these two critical metals, gallium and germanium.

So are you concerned about China's critical-mineral monopoly? Can you tell me where you think the administration perhaps, in some of their efforts against this, have fallen short? And, more importantly, we've got several efforts going on in Congress right now. How can we best accurately address this critical situation?

Ms. Gorman. I would say quickly that we've long known that China has a market power position in the refining and manufacturing and extracting of critical minerals. And these are minerals that go into all of our defense systems as well. So, when we talk about chokepoints, this is a huge strategic vulnerability that we have in the other direction.

And I think it's time we start considering ways to reduce that dependency, including with allies and partners like Australia, who have some of these supplies, and friend-shoring and creating, sort of, allied supply chains for some of these minerals where we depend on China.

Mr. Newhouse. In 1 second remaining, Mr. Evanina?

Mr. Evanina. I concur.

And I look at the raw materials issue as analogous to the antibiotics issue, in that we made a decision decades ago to outsource that to China, which now puts us in a precarious position.

I think we're at a juxtaposition right now with that, you know, chokepoint technology; we either are in or out of the rare-earth-mineral business. And I think we should be in.

Mr. Newhouse. Some of these things we can actually find right underneath our own two feet. So there's things we can do there.

Thank you, Mr. Chairman. Appreciate your indulgence.

Chairman Gallagher. Of course.

Thank you again to all witnesses.

Would the ranking member like to offer a closing statement?

Mr. Krishnamoorthi. Sure.

Thank you to the witnesses.

Thank you to the audience.

You know, before we began, I had the chance to talk to Mr. Wolfe about his upbringing on Coney Island, and he mentioned he enjoyed the Cyclone rollercoaster. And I think that it was probably fun for a lot of people who rode that rollercoaster because of the unexpected twists and turns on a very old-time rollercoaster.

And as I think about our China policy and funding for our China policy, I think it's a lot like the Cyclone. It goes up and down, and it's on a rickety, old framework. And because of that, we're in trouble.

And so I think, as I hear these witnesses -- and I think there's a unanimity of spirit

as well as sentiment that comes from them -- I just want to point out some of the things that I gleaned, listening to both the questions from the people on this panel and the answers that we received from the witnesses.

First, you know, we should not be doing anything that would help fund or assist any of the endeavors that the CCP might be engaged in that might harm us or our future. That should be like a -- almost like a do-no-harm-to-ourselves principle.

The second is, we've got to invest in science. We've got to invest in basic science. I think that, you know, my good friend Congressman Auchincloss likes to bring this up. But I think that, repeatedly, I think each of you have said, you need to invest in the NIH, you have to invest in NSF, you have to invest in any and every opportunity for us to gain an edge in the technologies of the future, both basic-science-wise but also in applied research and development.

And there, I would actually echo the sentiments of Mrs. Steel, who brought up a very good point, which is that we've got to go back to being able to expense the R&D tax credits immediately, not amortized over 5 years, as they are right now under the Donald Trump Tax Cuts and Jobs Act, but going back to being able to expense it immediately.

Third, we've got to double-down on our legal immigration system. This is a no-brainer. And I think that each of you mentioned that the pioneers and innovators come largely from both indigenous talent but disproportionately from foreign talent that comes here, and we've got to take advantage of that.

Finally, I think that each of you said we have to have a methodical way of going about and analyzing where our weaknesses are and where our strengths are and taking advantage.

And I think that Ms. Gorman mentioned that we should have some kind of a center for analyzing chokepoint technologies, whether it's, you know, in an ODNI

setting -- that is, a classified setting -- potentially, or in a public setting. There has to be a way to systematically determine where we are strong and where we are weak and then to take actions accordingly.

So thank you again to the witnesses.

And I yield back.

Chairman Gallagher. Thank you to the ranking member.

As I mentioned at the outset, I am studying, with this fine group of brilliant students, a book this week about the Korean War called "This Kind of War" by T.R. Fehrenbach.

And there's a point in it where he talks about -- he says, "In July 1950, one news commentator remarked that warfare had not changed so much after all. What happened to the widely heralded push-button warfare where skilled, immaculate technicians who never suffered the misery and ignominy of basic training blew each other to kingdom come like gentlemen?"

Whoever controls technology has an advantage, but warfare, by definition, will always be a violent, bloody clash of wills. Still, AI models, drone swarms, hypersonic missiles, precision munitions mean we are closer than ever to the possibility of a chilling vision of push-button warfare.

Now, we've spent a lot of time on this committee examining this question of technological competition. There's a lot different opinions on the best approach going forward. I confess not to have all the answers myself.

One thing I am increasingly persuaded of, however, is that, whether it comes to nuclear, micro-reactors, quantum, AI, if we allow the Chinese Communist Party to beat us in this competition, they will use this technology for evil to perfect the techno-totalitarian surveillance state that they could potentially export around the world, whereas we in

America and in the free world more broadly at least have a chance of ensuring that this technology could be used for good.

As I said at the very first hearing that we ever had, I firmly believe that we are the good guys. And the sooner we both believe that and start acting like that, the better chance we have of preventing war in the near term and winning the competition over the long term.

The final point of privilege I'd like to take is that this is the final hearing, I believe, that our legal fellow, Adam Chan, will participate in. He's expiring; we had him as free labor for about a year.

He graduated from Columbia Law School, and he had an opportunity to go -- he got a prestigious fellowship. He had an opportunity to go work in the office of a Senator who shall remain unnamed -- Ben Sasse -- and he turned that down in order to come to my office, and then was there, he was present at creation for the select committee. He has been an invaluable, invaluable resource for everything we've done on China.

He's a brilliant legal mind. He's going on to clerk in some prestigious clerkship. I tried to convince him to forego a life of being a lawyer and just stay here on the Hill. He refused, probably wisely. We'll see.

But, Adam, thank you for all your work.

And please all join me in thanking Adam for his remarkable work.

[Applause.]

Chairman Gallagher. With that, I want to thank our witnesses again.

Questions for the record are due 1 week from today.

[The information follows:]

******** COMMITTEE INSERT ********

Chairman Gallagher. And, without objection, the committee hearing is adjourned.

[Whereupon, at 9:09 p.m., the committee was adjourned.]