

THE BROOKINGS INSTITUTION
WEBINAR
A NATIONAL STRATEGY FOR AI INNOVATION
Washington, D.C.
Monday, May 17, 2021

PARTICIPANTS:

Introduction and Moderator:

JOHN R. ALLEN
President
The Brookings Institution

Report Overview:

ERIC SCHMIDT
Chair
National Security Commission on Artificial Intelligence

Keynote Remarks:

THE HONORABLE JONI ERNST (R-IA)
Ranking Member, Armed Services Subcommittee on Emerging Trends and Capabilities
U.S. Senate

Discussion:

THE HONORABLE MIGNON CLYBURN
Commissioner, National Security Commission on Artificial Intelligence
Former Commissioner, Federal Communications Commission

THE HONORABLE JONI ERNST (R-IA)
Ranking Member, Armed Services Subcommittee on Emerging Trends and Capabilities
U.S. Senate

GILMAN LOUIE
Commissioner
National Security Commission on Artificial Intelligence

* * * * *

P R O C E E D I N G S

GENERAL ALLEN: Good afternoon, ladies and gentlemen. For those of you I have not had the honor to meet yet, I am president of the Brookings Institution, John Allen, and it is great pleasure to welcome you all to today's event, "A National Strategy for AI Innovation."

Now, this afternoon's conversation could not be more timely. Earlier this spring the National Security Commission on Artificial Intelligence, or the NSCAI, released its final report. Established by Congress in 2018 the NSCAI was tasked with examining the current AI national security landscape and developing policies to maintain U.S. leadership in AI research, improve international cooperation, and advance shared principles for ethical and responsible use of artificial intelligence.

And I am happy to share that the report more than lived up to its mandate. Its rigorous analysis, its ambitious policy recommendations chart a clear and compelling path forward for the United States as it seeks to maintain its technological edge and outpace geopolitical rivals, like China and Russia. By investing heavily in tech talent and doubling down on our values, the U.S. and our allies can, and indeed I hope will, win what will arguably be the defining contest of the 21st century, namely, the competition over AI and advanced technologies.

To discuss its report and findings we at Brookings are deeply honored today to partner with the NSCAI. We'll start with opening comments from Eric Schmidt who served as the chair of the commission, as well as from Senator Joni Ernst from the great state of Iowa, who cosponsored the legislation that established the commission in the first place. We will then have a panel discussion, which I will moderate, with Senator Ernst, as well as NSCAI commissioners, Mignon Clyburn and Gilman Louie.

Before we begin though let me take a moment to introduce our very distinguished panelists more fully. As I noted, Eric Schmidt serves as the chair of the commission, formerly both CEO and executive chair of Google, Eric has been a crucial leader in the advancement and development of our national security technologies, especially in the realm of artificial intelligence. And, Eric, it's always a great pleasure to have you with us and a distinct honor to join us at Brookings yet again today.

We are also delighted to host Senator Joni Ernst, the ranking member and the former chair of the Senate Armed Services Committee's Subcommittee on Emerging Threats, and also a

member of the bipartisan Senate AI caucus. Senator Ernst has been a leading voice on artificial intelligence and national security within the halls of Congress and beyond. Senator Ernst, we are so glad that you could join us today and hear your voice on this very important matter from the congressional standpoint.

We're also thrilled to have the Honorable Mignon Clyburn join us today as well. A former acting chairwoman of the Federal Communications Commission. She has also served as a commissioner of the NSCAI, where she has been instrumental in developing and advocating policies that will ensure the U.S. government has talent that it needs to thrive in the AI powered environment of the 21st century. Commissioner Clyburn, we're so honored to have you with us.

And, finally, we're also extremely grateful to be joined today by Commissioner Gilman Louie. First as the founding CEO of In-Q-Tel and now as a commissioner of the NSCAI. Commissioner Louis has long worked to ensure that the U.S. government, and in particular our intelligence agencies, have the tools and the technologies necessary to secure and defend American interests around the world. Commissioner Louis, we're deeply grateful you could find the time to be with us today. It's always great to have you at Brookings. Thank you.

So with that, ladies and gentlemen, a few brief housekeeping comments before we begin. A quick reminder that we are recording this event and it's streaming live. And should you wish to ask questions you can submit those questions at events@Brookings.edu, or via Twitter using #NationalSecurityAI. Indeed, some of you have already submitted some excellent questions and we are grateful for your giving us those. Time allowing, we hope to be able to get to the ones that you can submit at this particular moment.

Before we get on with our panel today, I'd like to offer the floor to Eric Schmidt and then to Senator Ernst for their opening comments and thoughts and remarks.

So, Eric, let me offer you the floor please.

MR. SCHMIDT: Well, thank you so much, John. Brookings is a natural partner for what we're doing and under your leadership you and I have met many times to talk about China, national security, AI. You guys got it early.

Senator, it has been a great honor to serve our nation and be the chairman of this commission. It was your inspiration to create this. I am in debt to you and the fellow congressional leaders who made this happen. And I can speak for the entire commission that we are grateful to you for this opportunity to do this and to give us such an incredible opportunity to study this problem that is so important.

To Gilman and Mignon, we've worked very, very well together and we will continue to work together on these issues, I suspect for the rest of our lives because they're not going to go away.

So the commission, as you heard, was set up by Congress about three years ago. We met over two years, we released reports in the interim and we released our final report about a month and a half, two months ago. We spent an awful lot of time, to the point where we have 750 pages of information. We took the liberty, senator, to write the legislation you might consider in order to make some of the proposals that we make permanent in the NDAA and other legislative mechanisms that you understand very well.

We came to some consensus judgments. I think the first is that the government is not organized to win against this juggernaut. And I'll describe what the juggernaut is. But fundamentally the government is busy doing other things, it's not organized around this new threat, new set of problems. And the second the report says is that we must be AI ready by 2025. That when we look at the competitive framework, and in particular what China's aspirations are, they have a thing called "made in China 2025" and they have an AI strategy that calls for dominance by 2030, there is a window in the next few years where if we act we believe we can be safe and stay ahead. If we don't act soon, the consensus of the commissioners is that we will lose. And because of the nature of this technology, once we lose it's unlikely we will regain leadership for generations. So the stakes are really, really high.

So we divided the report into two parts. The first one has to do with how the government should use AI and should use it for primarily national security and some of its implications, as well as some associated technologies. And a second one is to state what it is going to take to win in the technology competition itself. I'll take a minute and summarize AI a little bit by saying that AI today is a predictive mechanism. It looks at a very, very detailed set of information that's much greater than

humans can take into their minds and it can analyze patterns and it can both identify unusual patterns, but more importantly predict the next thing.

There is a duality with AI where if you can do all of that you can also generate things. So this is why we have problems with, for example, misinformation. It's going to become very, very easy to generate false information for the evil doers benefit and against the way our democracy works. And we talked a lot about that. And there are many other such examples.

We talk about a number of actions that the government needs to take. The first is a leadership one. I'm not in the government, but I've now spent enough time as chairman of the Defense Innovation Board, where I worked for the secretary of defense, as well as our other political and legislative matters, to understand that the government is hierarchical and that basically these are large bureaucracies which tend to self-perpetuate whatever they were working on now. In other words, however they were set up is perfectly fine for now and the bureaucratic energy is such not to change. The only way change occurs is from direct command from someone very powerful, which in our country is the president or the vice president. So we make a strong proposal that there be something called a technology competitiveness council, we suggest under the vice president, to coordinate these activities. It's just not going to happen. There are too many different agencies, too many internal rivalries, too much overlap, too much confusion without that.

We have had no mechanism to organize for tech competition. And I'll give you an example. China announced a policy where they were going to dominate in AI semiconductors, quantum, energy, synthetic biology, and a number of other areas. Well, that's my whole world. That's everything I care about. Because those are the platforms that are going to provide trillions of dollars of shareholder wealth and new innovations and so forth over the rest of my life. And here's China saying they're going to beat us in each and every one of them. America does not have a strategy for each of them. Indeed, in our report we highlight the need for a strategy not just in AI, but for each of these platform technologies. The TCC could be one of the ways in which that happens.

We also believe that the DOD and the intelligence communities — and in the Q&A we'll talk about this more, I'm sure — they are going to have to accelerate their adoption of AI. There's

something called the JAIC, which is the Joint AI Center, which is a good start. But AI is going to have to be diffused through the entire operations of intelligence as well as national security. We're just not going to be able to defend against AI enabled threats without having a corresponding AI capability. And we're not just talking about cyberattack and cyber defense.

So we've said consistently that changing culture in organization, which again in the DOD will start with the secretary of defense. It's going to be important. We also spend a lot of time — and Mignon is frankly the person who drove this thinking in the most clever way among the commissioners, which is, among other reasons, why she's here — we have a huge talent deficit. We need to build a new talent pipeline and expand existing programs. And I want to be blunt and say the people we met with in the military, the various contractors, all the various agencies — by the way, we also met with foreign agencies that were friendly, etc. They were all very, very nice people. They all are very well meaning. Almost none of them know anything about AI. Almost none of them have the technical training and the mathematical training to understand this. I have such a background and I find it difficult to understand, because it's so new, it's so innovative, and it's so powerful. It's crucial that we have systems — and we'll go through those in some detail — to get new technical talent into the government, to give them a reason to stay, to give them specialized training, and to keep them in those roles.

I have lots of examples that I'll offer, but when I was working with the DIB, we would meet people who were cyber experts whose next job was as a guard, right. That's a really good reason to cause somebody to quit and go back to the private sector. They want to serve, but they want to serve doing what they care about. We are proposing in talent, for example, to build whole new pipelines of talent. We are proposing something called the digital core and a national reserve digital core structure and a pipeline of talent through a U.S. digital service academy. We are pushing for domestic talent as well as national security visas for high schools, immigration, stronger K-12 STEM education, all the things that are needed to remain leading and dominant in these areas.

Another area that we spend a fair amount of time on is hardware. We looked at software, which is sort of what I do a lot, and we concluded that we can't control the software and prevent our opponents from getting it. It's too diffuse, it leaks, it gets out there so quickly. But we can control

hardware. We need — and we said very clearly in our report — that the United States needs to stay two generations ahead of China in hardware. This is a very difficult problem because the leading ships are now being built outside the United States in most cases, typically in Taiwan, which is 110 miles from China the last time I checked. And, by the way, curiously, the fabs are all on the western side of Taiwan, almost in sort of eye length from mainland China, and the second area is in South Korea. We need to find ways of increasing domestic capability, domestic quality, new inventions, and so forth. It's notable, for example, that the leading chips that you use when you're using very powerful computers of today, typically five nanometer chips that are made in TSMC. There are a lot of reasons why this happened. It happened over 30 years. These were successive presidents and industrial decisions that got us to this state. We need to address it as a national security issue. There is a series of acts going through Congress, one of them is called the CHIPS Act, which tries to address this by coming up with \$35 or \$40 billion — we recommend \$35 billion — of federal funding to assist in the creation of this. Let me note at the same time we made our announcement, TSMC announced that they were going to invest \$100 billion — the same amount of money, just three times more — in the next generation of three nanometer technology.

And then the fourth is that we need to set up innovation mechanisms that will make things happen. We, for example, propose a national research network for small companies and universities to do powerful AI research to compete with the big companies, of which Google is one, that tend to have a lot of data and a lot of computing, and many other such suggestions.

To finish up, I want to say that we made a set of proposals around two things which I think they're worth saying right up front. The first is partnerships. When we face the competition with the Soviet Union they were of a similar size to us and about a third of our GDP. Today we are competing with China. They are four times to five times larger than we are, they have four times as many engineers, there's evidence that their STEM commitment is equal or greater than ours, and their GDP is similar. They are a different animal in the sense of competition and we need to get ready for that competition at the kind of scale that America can achieve when motivated.

The best way to do that is to have partners, specifically our cultural and western allies —

Europe, Israel, Japan, South Korea, potentially India. If we could assemble — I forgot Australia, New Zealand — you can imagine the list — if you assemble all of those you'll get the best talent across all of these places and the sum will be much more powerful than the parts. And we feel very strongly that those partnerships are consistent with both our cultural values and our security.

And then the final thing that we spent a lot of time on was this question of values. What we say is that this is a competition between autocratic values. And I'm not going to go into the details of what China does, but imagine if all of your connections have the same principals they have in China, complete surveillance of everything you did, all of your words tracked, everything censored. How would you feel as an American citizen? You'd probably be pretty unhappy. It would of course be a violation of our law. We have to build systems that are consistent with U.S. values, Western values. We shouldn't give up those values because of some goal or gain we need in AI. They need to be democratic. We are a democratically elected government and we believe strongly in that. And this includes for things like autonomous systems and so forth. We've got to find that path where we don't lose the things that built such a great country that I'm proud to be a very small part of.

So my bottom line — and I think the bottom line of the report — and let me just summarize — we need to act, we need to act coherently. Our country is extraordinarily powerful when it gets its act together, when the sum of the government and the researchers and the universities and the private sector together provide leadership in crucial areas. This is one of them.

Thank you, General Allen, for giving us an opportunity to present this. And, senator, I cannot thank you enough for your contribution in my life. So thank you.

GENERAL ALLEN: Eric, thank you for those extraordinarily important remarks. A clarion call. We have to take leadership of the technology, of the governmental organization, the human capital, the cultural change, the organizational approaches, the partners we must have. But your final point is the most important, and that is that it has to be consistent with our values. And it means that America has to lead here.

So, with that, thank you very, very much, Eric.

And let me please invite Senator Ernst to offer your views and to thank you in advance,

ma'am, for your leadership in this because the report today was part of your vision. Thank you.

MS. ERNST: Thank you, General Allen, and Eric, thank you again for your great leadership. And thank you to the Brookings institution as well for inviting me to this afternoon's discussion.

I am excited to be here today. This event is focusing on great power competition of the future, which is artificial intelligence, advanced military hardware, and of course our U.S. service members and the private industry partners that are behind all of this.

And before I get into — just a few brief remarks to help set the table for our discussion today. I first do want to express once again my gratitude to the National Security Commission on Artificial Intelligence for their work and the success of their final report, which will go on to influence many of the decisions that we are making in Congress today. That two year project really has made an impact really has made an impact. It's already making an impact on our world as we know it. So at least 20 recommendations by the commission were included in our 2021 National Defense Authorization Act. So, Eric, we're already working on including those recommendations. And through our efforts in the NDAA we we're requiring AI technology to be developed ethically. You touched on that already — ethically and sourced responsibly.

We have also created a new executive level national AI initiative office. And, finally, very important, we set the National Institution of Standards and Technology's new AI risk management framework. And while it was the product of Congress, it was largely the commission's work. And, Dr. Schmidt, thank you again for your work as the chair. And the same appreciation goes to our commissioners also, Commissioner Clyburn. Thank you so much for all of your dedication on this extremely important project. It was a job quite well done. And I think all of us do agree though that there is still work yet to be done.

And so it is my privilege and honor of course to represent the great State of Iowa and continue hold the nation's deep ends and supporting our military through my role on the Armed Services Committee. And as the ranking member of the subcommittee on emerging threats and capabilities, I am working to ensure that our military has the advanced technology and tools that we need to win in modern

competition today and well into the future.

And the benefits that come with harnessing artificial intelligence are critical to the work that we are doing. We know that the present and the future U.S. military operations are going to be heavily, heavily influenced by artificial intelligence. And that's why it's so important that we are organized, that we are trained, and we are equipped for this new reality.

In the 29th century and beyond the United States of course was the unquestioned global leader in military technology. And we set the pace. Obviously we utilized the pack on many of these initiatives, and it is largely driven by our investment in defense. But today that dynamic is changing. Fast paced technology advancement is no longer a U.S. specific or a DOD specific ball game. The pace of development of advanced technologies like AI is now most often led by our commercial space. And this puts us in a place where the government has to adapt and become what we like to call our fast followers. We must be dynamic in acquiring new technologies and we must be flexible as we're implementing them and skilled of course when we use them. Modern warfare is no longer a contest of just combat troops and various weapons systems. I see you shaking your head, General. You know exactly the truth. Yes. It is more than that, it is not just about that best soldier, best mortar system, or jet aircraft. Russia and China's cyber warfare, they're quantum computing, missile technology, and AI operations are serious threats that are impacting our American security today. And they are not slowing down, folks. Both of these near peer adversaries are running capabilities and campaigns to develop their own tech while they're stealing that of our companies and our allies.

China's military expansion goes hand in hand with its global goal of being a leader in AI technology by 2030. They have a whole of government strategy with a clear goal, which is to be the world's preeminent superpower by 2049, the 100 year anniversary of the founding of the People's Republic.

Vladimir Putin has also made it very clear that he sees AI as their end game. He stated whoever becomes the leader in this field —

GENERAL ALLEN: Ma'am, you've muted yourself.

MS. ERNST: Somehow I ended up on mute.

But back to Vladimir Putin. He said that whoever becomes the leader in the field will rule the world. And we know that that is true and we can't sit idly by as they are gaining ground in this area.

So as the commission's report sort of concluded, the U.S. remains, for now, the global leader in our hardware and our IA algorithm development. I believe the U.S. has all of the raw materials necessary to blaze a new trail of technology advancement and maintain our military advantage well into the future. We do have the methods and the means necessary to adopt AI specifically to meet our U.S. security goals. And I'm excited, I'm optimistic that our war fighters will remain the most advanced, agile, and lethal fighting force on the planet. We really need to take these recommendations, continually rolling them forward, whether it is through independent legislation or whether it is through the National Defense Authorizations Act. But we do need to do it.

So thank you very much, General Allen, for including me in today's discussion and I'm really looking forward to our questions.

GENERAL ALLEN: Well, Senator, thank you very much for your thoughts. Your point is very clear, American leadership in the 21st century has to be leadership in these fields of emerging technologies, artificial intelligence, and ensuring, as you say, that our troops have the very best possible in order for us to remain that dominant force.

So thank you, because you'll be at the heart and soul of that leadership. So thank you, ma'am, for all that you're doing every day.

We would like to go to questions and answers for a few minutes. Let me, if I may, start with Commissioner Clyburn.

Commissioner Clyburn, let me ask you about two of the very innovative proposals that came out of the commission. One is the United States Digital Service Academy, which Eric alluded to, and the other was the National Reserve Digital Corps. Now, I'm a former commandant of midshipman at the U.S. Naval Academy, so I am all about your recommendations. Could you give us little bit more on your thoughts of that? Because, again, this is about harvesting the human capital of our great country and putting it to work here.

MS. CLYBURN: My pleasure, General Allen, and thank you for the opportunity to

participate in this high priority discussion on our nation's national security and defense needs and its greatest strength and assets, its people.

Among the many challenges we face is a severe shortage of digital talent in government, especially AI talent. NSCAI commissioners and staff interviewed hundreds of government officials and we heard two consistent messages. First — and I'm being intentionally repetitive here — is that not only does the government not have enough technical talent, but our government isn't doing enough to bring in more talent into its ranks. And, second, government leaders need to better understand AI, its potential, and its limitations and what their organizations need to do to build AI capabilities.

While the commission has provided recommendations to address the issue of scale before, the number of personnel being brought into the government workforce with digital talent, as I mentioned, is quite small. Even with maximum use of scholarship for service program and the extended hiring authorities, the government will still lack sufficient critical AI talent. What we need is a dedicated talent pipeline and the United States Digital Service Academy would primarily address the problem of scale.

Much like the military service academies, USDSA would help shape the identity and culture of these graduates, including their standards and ethical norms. It would provide a common student experience focused entirely on developing new technical proficient civil servants to enter the government workforce. These service oriented graduates would be trained to lead the nation's digital workforce and ensure the United States sets an example of intelligent, responsible, and ethical, high tech leadership.

And, lastly, governor — general — I am either promoting you or demoting you (laughing) — but, general, many government departments and agencies lack ready access to digital talent to help complete these increasingly data intensive projects. There are digital experts who would like to contribute to American national security, but are either unwilling or unable to become full-time government employees or military reservists.

The times call for mechanisms that would allow the government to easily access such talent and allow them to rapidly provide digital solutions to the government with their existing skills. So

the commission recommends the establishment of a National Reserve Digital Corps modeled after the military reserves that will allow civilians to work for the government for a minimum of 38 days a year as special government employees to serve as advisors, instructors, and developers. I believe that this will immediately and in a very targeted way answer the call that we have and the challenges we have for that pipeline of opportunities and individuals that we need for a more secure future.

GENERAL ALLEN: Commissioner Clyburn, that was brilliant. Those two assets are going to I think really enhance our capacity and ultimately ensure our competitiveness as we go forward. Terrific ideas.

Commissioner Louie, let me ask you as well, because this follows almost immediately to the explanation that Commissioner Clyburn gave us, having the capacity at the human level, first to understand and then to leverage AI is going to be essential for our intelligence community going forward. As you think about this, can you speak to the potential that AI holds for our intelligence community and why is it so important that our intelligence analysts and our officials learn to harness AI going forward?

MR. LOUIE: Thank you, General Allen.

You know, across the national security mission, I think AI stands to have its greatest contribution to the intelligence community. And when I say that, I mean across the entire intelligence cycle. If you think about intelligence, intelligence is really (inaudible) about sense making, right. You know, taking lots of data from lots of different places, assembling sense, and communicating that sense to principles and individuals who can take action on that and that actionable intelligence allows our intelligence community to keep the nation informed and keep it safe.

So if you think about the intelligence cycle from tasking to collection to analysis to dissemination, this is more than simply assembling reports. I think a lot of people think about the intelligence community's principle role is to put together things like the presidential daily briefings. And those are very, very important. But we live in a world that is no longer dictated by the daily 24 hour cycle. These threats are happening in real time.

You think about maligned information, cybersecurity attacks, right. These are happening at machine speeds and AI not only can make sense of those large collections of (inaudible) with real

human analysts, real human intelligence officers, we can really empower them to be able to respond quickly as well as to prepare itself for the challenges ahead.

So I think from the intelligence point of view that ability to make sense in a world where our adversaries may be using AI to mix us up, to project false information, to hide its intent, we need to have superior AI to be able to react to those motions as well as to keep our nation informed.

GENERAL ALLEN: And as you said, that superior AI comes from a fundamental understanding and an inherent willingness to both understand it and apply it. And so that requires leadership in the intelligence community as well. So thank you.

MR. LOUIE: Absolutely.

GENERAL ALLEN: Thank you very much for that.

Senator Ernst, if I may again, as you well know, to make progress on these issues that Commissioner Clyburn and Commissioner Louie have already identified, we'll need significant bipartisan support.

Now, both as the chair and current ranking member of the Subcommittee on Emerging Threats and Capabilities, and as a member of the AI caucus, you've worked in a thoughtful and bipartisan way with your colleagues across the aisle. Can you talk about some of these efforts and the importance of tackling these challenges and, frankly, opportunities of artificial intelligence and these emerging technologies that Eric went through that long list, and doing it in a national security environment in a bipartisan manner?

MS. ERNST: Yes. And thank you, General Allen.

And this is very important because both as Democrats and Republicans, we are all on the same page when it comes to this point, is that we all understand that artificial intelligence will mean so much and determine so much of what we do in the future as we're looking at our near peer adversaries. So Russia and China obviously are well developed in this area. We still are on that cutting edge. We lead them slightly in this area, but all of us need to come together and make sure that we are supporting just exactly what the commissioners and what Dr. Schmidt has laid out so beautifully for us this afternoon, making sure that we are coming together through Congress and supporting those efforts, whether it's

through the NDAA, whether it's stand-alone legislation, like the CHIPS initiative that we have heard about earlier today. But we can't as we're looking at those issues. What we can't do as well is allow China to be part of our supply chain. So focusing as well in a bipartisan manner on supply chain issues is critical. We do have to secure domestic manufacturing, which is something through CHIPS we are trying to do, is to make sure that critical components to artificial intelligence and quantum computing, all of that, can be developed, whether through our allies or right here domestically.

When we're looking at the defense realm we obviously do not want China as a player in any of those component pieces and certainly we do see this work already being done in the area of fiber optics. So we're stepping forward in a number of areas. But, again, U.S. based defense production is critical. And we all come together as — two parties, we come together, we meld together to push this initiative. And, again, that's why with the commission's work, the leadership of Dr. Schmidt, we have those proposals that we can act on as Congress. And we do come together every year, NDAA, and make that happen.

GENERAL ALLEN: Well, and the encouraging part of your explanation, senator, is that there is so much bipartisan support for this.

MS. ERNST: Absolutely.

GENERAL ALLEN: And as all of us are trying to understand the potential, both the potential and the challenge of artificial intelligence and these emerging technologies, I think we're all unified in ways we may not be on other issues. We're all unified on understanding it and giving our folks the greatest possible edge. That's the bipartisan support that we can (inaudible) truly leverage it.

MS. ERNST: Commissioner Clyburn mentioned it as well that all of our leaders really need to understand the importance of artificial intelligence. And we are working on that to educate all of the other members that may not sit on intelligence or on national security.

GENERAL ALLEN: Well, we're looking forward to sending them all to the Academy.

(Laughter)

MS. ERNST: Good. Thank you.

GENERAL ALLEN: Commissioner Clyburn, let me come back to you if I may.

It was interesting that one of the most striking aspects of the report is that an AI enabled threat doesn't take the form necessarily of a lethal autonomous weapons system. In fact, one of the great threats to America today and our free and open society is AI empowered information, disinformation systems or strategic influence systems that directly target the free and open society of the United States.

Now, you come uniquely qualified for this conversation today because you are both a publisher and a general manager of a family founded newspaper in South Carolina. So I think it's safe to say that you would understand this better than almost anyone that we could ask this question to today.

So how do you view the threat of artificial intelligence and disinformation? What does it pose as a threat to our free and open society? And how should we understand it? Very importantly, how should we combat it?

MS. CLYBURN: Well, you're so right to mention that it might not come in the form in which we think it would organically. To affirm how important this is, all you have to do is turn to chapter 1 of this report. Because we speak about AI enabled and accelerate cyber-attacks, that these are the threats that we focus on the second most. They include newer versions of old threats, such as polymorphic malware, as well as new reinforcement learning tools that can find vulnerabilities, conceal malware, and attack selectively. These AI enabled cyber threats, they are more precise, they are tailored, they are faster, and they're more automated, they're stealthier and more persistent. And together, sadly and more scary, you know, they are more effective on a larger scale.

So to combat these threats, you know, our biggest recommendation was to deploy AI enabled sensors and machine speed threat detection, mitigation, and information sharing in order to defend, adapt, and repair government networks.

Our other recommendations here focused on testing and training, AI enabled cyber defenses, subsidizing a selective replacement of vulnerable systems, implementing AI relevant recommendations from Cyber Solarium, and again, more. So you should to be surprised that, you know, considering all of these threats, considering that AI systems can be used to create and manipulate text, audio, video, that they can target messages to individuals based on discreet individualized characteristics.

And, of course, I have to — you know, with the media background you mentioned — talk about digital media platforms themselves. They include AI systems that can be inadvertently — you know, can inadvertently proliferate or be manipulated into proliferating propaganda. So we've got to combat these threats. We propose, as I mentioned, a creation of a national strategy for information domain and office of science and technology policy task force to assess digital media authentication standards and DARPA. Cannot forget DARPA, those programs to countermeasure tools to malign influence campaigns. This is a 24/7 joint — got to be inter-agency task force and initiatives in order to harness what is already existing inside of government with our authorities in order to counter malign information campaigns. We've got to do it, it's got to be in real time.

And just for a personal aside, I am really happy that we recognize this and we are now here in a partisan free zone. We agree, we recognize, and together we will — we will be stronger together.

GENERAL ALLEN: That's terrific. And your perspective is really valuable to us. And we know that our opponents, whether they're state based threats or non-state actors, or transnational criminal entities, what artificial intelligence gives them is a speed of action and a precision of targeting that we have never seen before. And although it's not our critical infrastructure, what they're targeting is that six inches between our ears. And they can get at that very quickly and can really create a lot of disruption in our society.

MS. CLYBURN: Absolutely, John.

GENERAL ALLEN: You couldn't be more right.

We just had today on our Brookings website a piece in our text stream on the origins and understanding of fake news. So this is exactly the point that you're making. It's about getting after the disinformation.

Mr. Louie, if I could come back to you. One of the striking themes within the report was the importance of targeted investment. And as the founding CEO of In-Q-Tel, you're well aware of both the challenges and the opportunities for public-private partnerships in technology, especially when it comes to investment.

So what would you like to see the Biden administration investing in more heavily? And do you think we should be investing more in the domestic semiconductor manufacturing, for example?

MR. LOUIE: I think you hit the right on the head, General.

Hardware is at the center of our semiconductor infrastructure. Without semiconductors, without those chips. We can't power up the intelligence that we need to have secure AI, to go deeper, faster than our adversary. To think ahead of our adversaries requires a huge amount of computation. And, unfortunately, as we made our supply chains more efficient, our dependency on imported semiconductors grew and has grown to a point where it is now a national security risk.

I mean think about it, that only 110 miles separates the factories at TSMC from the batteries of China. And that linkage, if it gets cut off, gets to the heart of not just our ability to have consumer electronics, but our ability to actually power up systems that protect the country.

China has made a commitment in semiconductors. They have pulled out all the stops. They are investing in hardware, they're trying to catch up to our lead. We have a two generation lead in semiconductors, at least in terms of design and software capability, but our challenge is the actual factories, the fabrication plants that we rely on are not on this shore.

And so we need to build that capacity. We need to invest in America's ability to produce the next generation of chips to stay ahead.

And when Eric talks about you need to have 5 nanometers, 3 nanometers, 2 nanometer chips, right. They have to produced here because our intelligence systems, our military systems are totally dependent upon this.

So a couple of things we need to do. First, we really do need to have a national microeconomic strategy. It needs to be held by the White House, you need this, to have bipartisan support. And while there's been a lot of work, both in the Congress and the executive order, we still have a long ways to go to make that a reality. We need to double down in macro-electrics research. That's an investment that will keep paying off dividends for generations to come.

And that \$35 billion that Eric spoke about, that is the downpayment necessary to maintain our technical leadership of the engine that powers up AI, and that engine is CHIPS. So it is really, really

important. And it's critical that we continue to pass legislation, continue to invest in the talent that we've talked about in this report, in our ability to design, develop, manufacture, and deploy macro-electronics to power up not just AI, but all kinds of other critical technologies, like 5G quantum computing, all bio tech, All driven by our ability to compute.

GENERAL ALLEN: We've barely scratched the surface on the issue of biotech.

MR. LOUIE: Exactly.

GENERAL ALLEN: That could be another entire commission entirely, Senator. But that is an area that we really have to pay attention to because our opponents are paying great attention.

And, Senator, your leadership has been critical to delivering us in so many ways to where we are now. As a result of the commission's findings, already getting into the NDAA. This is an accomplishment.

But from your background, and has having been a leader in the chair and now the ranking member of the Subcommittee on Emerging Threats and Capabilities, you've repeatedly raised the alarm about the ways in which our major rivals, Russia and China, have doubled down on AI. And you've pushed for the U.S. to do the same.

So as the Biden administration, senator, puts together a strategy to counter Russia and China's push on technology, what advice would you give the administration at this particular moment? And how do we remain competitive in this environment, where our opponents are pushing so hard and investing so much in their future superiority to us in this are?

MS. ERNST: Well, this is really great. And I'm glad that we do have an administration that really does understand that we do have near peer adversaries, Russia and China, that are heavily, heavily invested in this area. And I think we have all touched on these main themes that came out of the report.

But number one is that we have to take this seriously and that we can't do it all within the government. We do have the talent right now outside of the government existing in our companies. So the DOD in turn needs to utilize some of that talent and become that fast follower.

So it would be good if we could integrate as much as possible coming from the private

sector and continuing that innovation. As Commissioners Clyburn and Louie have stated, developing that talent and drawing that talent in is really important. But until we get to that point, we have to be that fast follower.

We need clear goals. So that's one thing I would stress to the administration as well is that we do need to set those goals, you know, whether it's one year, five year, ten year, or perhaps even a one year (inaudible) goal set would be wonderful to have those targets for us to focus on, whether it's through NDAA or other types of legislation.

But then also our service members within DOD, whether it's civilian or, in my case, as I'm looking at service members, they need to get the absolute best training in artificial intelligence. And we need to prepare them for that challenge as well. We've already talked about that in this discussion, about drawing in that talent, educating them, making sure that they are given the best possible training in mathematics and the sciences.

Our technology is no good. It is no good unless we have the soldiers behind it. So not only do we need engineers developing those programs, but also we need soldiers, airmen, you name it, with the skill set to analyze (inaudible) the — you know, this is all working in conjunction together. But if we're not investing in the men and women that are behind these systems, then what's the use of that technology if we don't have the humans to back it up?

So I think that's what we have to — we really have to stress to the administration. We continue to do that. I'm very glad that we have open ears and minds to this conversation. We have to do it.

So, again, just making sure that we have clear, measurable goals and targets, that we're investing not only in the technology but the humans that are behind those systems. AI is no good if it's stand alone. We really to have to put the investment into it.

So I'm glad to be here and to be in a position where we are working with the administration, working with DOD to make that possible. And, again, we couldn't have come to this point if we didn't have the commission, you know, setting those targets for us and working with us, tearing down the boundaries between all of these different agencies, Congress and the DOD. So together we

can make it all happen.

GENERAL ALLEN: Thank you, Senator.

And we've only got a few minutes for some Q&A. So it's like a lightening round now, if I may.

And, Senator, if I can come straight back to you. Does the CHIPS for America Act go far enough in reclaiming the U.S. semiconductor leadership and the power of AI?

MS. ERNST: It goes I think as far as we can move it now, but again, incrementally as we are working and educating our leaders on what we can do and should do here in the United States, of course to face that great power competition, but to develop what we need domestically, very, very important. I do see follow on opportunities coming. Just like anything, technology advances very rapidly, legislation not so much. But we will continue working in this area and doing what we can as we can.

But, again, being advised by great groups and folks like you.

GENERAL ALLEN: And as you've said, it's incremental and we will learn more as we make greater progress along this route.

MS. ERNST: Yes, absolutely.

GENERAL ALLEN: But this is a very important start, a very important start.

Commissioner Clyburn, let me come to you if I may. How do cities and municipalities contribute and participate into the national security strategy for AI innovation?

MS. CLYBURN: Recognizing that the talent is right there in front of them, that there is no student too young, and no adult too old to participate in this. That we recognize that no matter if your road is paved or if you walk to school along a dirt road, that there is a contribution and there is a pathway to get educational opportunities for you.

And so it's just recognizing that through the school districts, through partnerships with private industry, through engagement with the National Science Foundation and the like, you know, with grants and the like, that we have the opportunity to build the talent that may not be identified at first blush, but the talent is there and the onboarding opportunities are right there, literally along our streets, along our corridors, and in our backyards. They are there for us to build a more secure future with AI at the

epicenter pointing straight ahead to help us thrive.

GENERAL ALLEN: They are the platforms for innovation in so many ways and the solution of so many of these issues that we'll face in the future.

Commissioner Louie, let me come back to you if I may. What do you think is the role of the private sector as we consider AI regulatory frameworks going forward? You know, the private sector in so many ways has defined our AI competitiveness on the global stage. What's the private sector's role in helping us understand the regulatory frameworks going forward?

MR. LOUIE: I think the private sector is an important partner for us if we want to maintain our leadership in AI? If you look at the centers of excellence, you know, it's not just our universities, it's not just our national labs, but it is really being driven by the commercial development and applications of AI and the advanced technologies that AI depends on.

Now, American industry particularly, which focuses in on things like safe and responsible use of these technologies, the amount of testing — and we only have to look out our windows and look at all the self-driving cars climbing up and down the streets. Testing and validation is critical for safe and responsible use of AI. And the use of these technologies in a way that make sure they aren't biasing against certain populations, that it is having a framework for that fairness around the democratic use of these AIs. It's what separates the American industrial base of AI and potentially of those from our competitor nation states.

GENERAL ALLEN: Well, let me ask a final question, I think to all of the panelists. And Eric touched on it, he used the terms "values", and all of you have talked about what is inherently unique to America as a great people, as a great country, as we think about not just artificial intelligence but other emerging technologies, what are thoughts that we should be — what should we be thinking about as a great nation going forward in the context of our values and the application of artificial intelligence in the military dimension?

MS. CLYBURN: That we should lead with them, that we don't have to make tradeoffs. And not making tradeoffs is an actual strength. It distinguishes us from our adversaries and it binds us closer to those who are our partners, our strategic partners. So it is a strength. We should lead with it,

and it will continue to give us a competitive advantage.

GENERAL ALLEN: Very powerful.

MS. ERNST: It would agree as well. Yeah, I would agree as well.

We set ourselves apart. We do respect individual's rights, their privacy, but certainly it can make our military much stronger, much more advanced. China, they are lurking behind every social media platform developed by that nation state. They do not respect their citizen's rights to privacy, nor do they respect individual rights.

So we do need to lead with our value system as we're looking at these applications and making sure our military remains strong because of this technology, but remembering what makes us very different than Russia or China.

MR. LOUIE: I think the power of the American warfighter has always been our ability to empower our officers and our enlisted to make critical decisions for themselves and for their troops on the battlefield. We are not a centrally controlled military.

So when we talk about democratic values, those democratic values of applying AI to advance and empower individuals to make the very best decision is a very different framework than our competitors who want to control by central control of these tools and this power to control the individuals or their militaries. And it will continue to be an advance of the U.S. We made sure that our military has the best tools. And if they have the best tools the U.S. will continue to have a predominant role in protecting not only this country, but other democracies throughout the world.

GENERAL ALLEN: And I think your points — all of the panelists' points point back to the central well of our values, which is our Constitution. And I would suspect that all of us at some point or another have sworn to support and defend those value. It is who we are as a people, it is who we are as a country.

And I can't thank you all enough for having joined us this afternoon to talk about the results of the NSCAI because that report, as the Senator has already indicated, is finding its way into legislation. The recommendations are beginning to shape our future as a leader in artificial intelligence, but more importantly in emerging technologies.

And to the commissioners, your leadership and your hard work over the last two years that could produce this report with these many recommendations that will shape our future, we all can't thank you enough.

And to Senator Ernst, again, ma'am, thank you for your leadership. You're leading in one of the most important dimensions of what will define the role of the United States on the global stage in the 21st century and the geopolitics that we'll pursue, and that is ultimately to ensure that we remain ahead in these emerging technologies.

And I want to thank the audience for having tuned in this afternoon. And I hope you were listening very carefully, because what you heard this afternoon was an extraordinary conversation and discussion and the answering of questions that I think are in the minds of most people on this issue.

So, with that, ladies and gentlemen, thank you so much for joining us this afternoon. And to the panelists, thank you again for enriching us today with your thoughts and your opinions and your recommendations.

Good day.

* * * * *

CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

ANDERSON COURT REPORTING
1800 Diagonal Road, Suite 600
Alexandria, VA 22314
Phone (703) 519-7180 Fax (703) 519-7190

Notary Public in and for the Commonwealth of Virginia

Commission No. 351998

Expires: November 30, 2024