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THE U.S.-CHINA TECHNOLOGY RELATIONSHIP IN FLUX

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Introduction and Moderator:

RYAN HASS

The Michael H. Armacost Chair and Fellow, John L. Thornton China Center
The Brookings Institution

Panel Discussion:

HENRY FARRELL

Professor of Political Science and International Affairs
Elliott School of International Affairs
George Washington University

CAN HUANG

Professor and Head, Department of Innovation, Entrepreneurship, and Strategy
Co-Director, Institute for Intellectual Property Management
Zhejiang University

ABRAHAM NEWMAN

Director, Mortara Center for International Studies
Professor, Edmund A. Walsh School of Foreign Service and Department of Government
Georgetown University

ADAM SEGAL

Ira A. Lipman Chair in Emerging Technologies and National Security
Director, Digital and Cyberspace Policy Program
Council on Foreign Relations

YELING TAN

Assistant Professor of Political Science
University of Oregon

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P R O C E E D I N G S

MR. HASS: Good afternoon. My name is Ryan Hass. I'm a Fellow here at the Brookings Institution. And it's my pleasure to welcome you here for today's panel discussion on *The U.S.-China Technology Relationship*.

This event is the culmination of research effort that's been led by Georgetown University's Initiative for U.S.-China Dialogue on Global Issues, involving 12 leading innovation and globalization experts from the United States and China.

This group has been convened by Abraham Newman of Georgetown University, and Henry Farrell of George Washington University, in collaboration with Chiew-Lan from Zhejiang University.

The group has met three times over the last year or so to develop and pursue a shared research agenda on the role of technology in the United States-China relationship, and on practical steps that could be pursued by both sides to advance the relationship.

I think that it's safe to say that their work has come at a critical time. Never in the past 40 years in the U.S.-China relationship has technology issues played such a central role in the relationship or had such a profound impact on the bilateral relationship, and frankly, on the world economy.

Today's panel is designed to help us break through the noise to really focusing on a few key questions. What are the root causes of the growing tensions in the technology space? What are the potential pathways forward with the United States and China in the technology space? What options does each side have for protecting itself while also promoting continued economic development and innovation? And what type of technology relationship would most benefit China, and most benefit the United States?

And I think that we are fortunate to have an all-star panel to help us march through these questions. We've assembled some of the best minds in the space, and I'm going to be ruthlessly efficient in introducing them so that we can maximize our time together for the discussion. You can find the full biography of their experiences and accomplishments in the welcome packet.

Adam Segal, starting from right, is the Director of the Digital Cyberspace Policy Program at the Council on Foreign Relations.

Can Huang is a Professor and Head of the Department of Innovation, Entrepreneurship

and Strategy at Zhejiang University.

Abraham Newman is a Professor in the Walsh School of Foreign Service and Government Departments at Georgetown University, where he serves as Director of the Mortara Center for International Studies, and Chair of European Union Studies.

Henry Farrell is Professor in the Elliott School of International Affairs at George Washington University.

And Yeling Tan is a Professor of Political Science at the University of Oregon, and a Fellow in the World Economic Forum's Council on the Future of International Trade and Investment.

In terms of our format today, I've asked each of our panelists to provide a few brief framing remarks to help us situate where we are in the story.

We will start out with Abraham and then Henry, then Yeling, Can, and close with Adam. I will then pose a few questions to the group to try to tease a few additional areas of exploration. And then we will turn the conversation to you for an interactive, and I hope, robust question-and-answer session. We will wrap up by 2:30, perhaps a few minutes earlier.

So with that, I would like pass the floor to Abraham.

MR. NEWMAN: Great. Thanks Ryan. Thanks also to Brookings for all the support in making this happen. We really appreciate it and it's such a great venue to have this conversation.

Let me just start by saying when we started this project, it was two years ago in May, this was before the ZTE case happened, and we brought this group together, we thought this was a sleepy backwater of U.S.-China interaction. And as the audience here I think today can attest, this is now really at the forefront, you know, it's in the news every day.

And, you know, we're very excited about it, but I think it's -- for many people in the group, it's a shocking turn of events. And I think that's why it's so serious that we get together and have these conversations with our Chinese colleagues, because you don't really where the next kind of hot-button flash kind of topic might emerge.

So, let just kind of summarize a few key results of this conversation that we've having for two years. So I think the first is that we, as a group are -- were skeptical of the frame that either we can go back to the way it was, that there's just a world of Ricardian specialization where the U.S. and the

Chinese technology sectors integrate in a seamless way.

And we are also skeptical of the conversation that we can just decouple, they'll just be -- you know, we'll just be separate blocs and our technology companies will go back to having almost Antarctic relations.

So either framing it as like: we can just have the win-win continue, or that it's going to be zero-sum it's probably not going to be a great way forward for the two countries. And so what we are really focusing on is, how you have a world where you have continued interdependence, but you also have vulnerabilities?

So you're working together in many technology chains, but you also have to realize that those interactions are creating vulnerabilities and threats at different levels. It's not just an economic game but it's also a security game.

And so I think that is kind of the first major realization that the group is trying to push forward, and what follows from that is that the vulnerabilities, there's not a consistent set of agreement on what those vulnerabilities are.

And so there is at least three that we've thought about, one of them is just a technology vulnerability that something provided by another partner in another country might fail and that might create some kind of inefficiency in your technology systems.

But the second is that it's a political problem, that there -- you know, we have different regimes in the United States and China, and there are political skepticism that there's trust that can be engendered between those two political systems.

But the third is a set of national security equities. And it's not just about political or differences in ideology, but it's also that there are strategic vulnerabilities that arise through these supply chains and innovation systems.

And so when you're addressing how do you maintain the interdependence, how do you mitigate the vulnerabilities that are raised by this really dense cooperation in technology, you have to think about: well, what's the concern in that moment? Is it technological, political or strategic?

The second thing that we wanted to highlight is the idea that this is a dynamic relationship, so one move by one side, so some activity by the U.S. Government or the Chinese

Government, it doesn't just have a one-moment-in-time effect. So we've seen this very clearly in the interaction with Huawei, and the United States in the blacklisting of Huawei, the response has been a move towards self-sufficiency in China towards the semiconductor industry.

Now, whether that actually will be successful or not is unclear, but it's not that the end of the story is the Huawei ban. The next is it sets off a set of political conversations in China, but then have consequences for the U.S.-Chinese relationship. And so we really need to think about how we're interacting in the technology space, as a dynamic process. It's not just a one snapshot kind of event.

So, the kind of takeaways that we think about for policy is the first is how do you reduce miscalculation? So, there's a lot of, I think, uncertainty on both sides about, what are the consequences of maintaining technology interdependence between the two sides?

And so I think we are arguing that you really need to establish a set of clear rules of the road, of how technology cooperation can continue, and also ways to minimize miscalculation by political leaders on both sides that this is somehow creating political or strategic vulnerabilities.

And the second, I think, implication we have is that governments on both sides really need to invest a lot more in understanding industry and technology in the current environment.

So, at least on the U.S. side, there has been I think some de-emphasis on how industry can have security consequences. And we think the response is, is that bureaucracies across the U.S. Government in particular, need to invest much more in how supply chains, new technologies, artificial intelligence; how those things; those industries are interdependent, and how to understand those interdependencies, because the lack of that knowledge in government agencies then we think will likely promote these types of miscalculations.

So, with that, I'll turn it over to Henry.

MR. FARRELL: Okay. Well, as Abe said, this is a major transformation in the U.S.-China relationship, and we also think that this speaks to a deeper transformation that is happening in the way that our globalized economy works. And you can see this most clearly, for example, in the debate over the U.S.-China fight over Huawei, which is very often the picture is being primarily around trade, but instead is really a deeper conflict around globalization, and in particular about the networks, the kinds of networks that have woven globalization together.

So, this is something that Abe and I described in a recent article that was published in the journal *International Security*, on a topic that we call "Weaponize Interdependence". And here, applying the insights that we have come up with there to this situation, what we would say is that the current fight over Huawei is really a kind of a marker of how it is that old notions about how globalization and the globalized economy worked, that these ideas have, for better or for worse, been to a great extent, abandoned.

So that, for example, the United States, the United States policymakers used to think about how when China was drawn further and further into the networks of the global economy, that this would have a gradual liberalizing impact upon China, make China more like the United States.

And it's very clear that the consensus that this was going to happen, that consensus has more or less been destroyed over the last number of years, and probably would have faded away regardless or not of whether President Trump was elected.

And instead what we're seeing is a new attention paid to the strategic relationship between China and the U.S., and other powers, with particular attention being paid to how the networks of globalization don't necessarily serve to have this liberalizing impact, but instead how they could be weaponized, how they can be turned into tools of coercion.

And if one looks at the major global networks one can see how these networks have these hubs, they tend to centralize around these particular hubs which can be seized by states and turned into a means by these states in order to conduct large-scale surveillance, or else plausibly to actually choke states off, or choke businesses that are key to those states off from the kinds of resources that they need to work.

And so this explains much of how the Huawei story has actually turned out. If one looks at U.S. fears about Huawei, they're very straightforward. There are fears that the 5G network would allow Huawei, and by extension the Chinese Government, to do to the world communication system, what the United States had done back in the day with the NSA.

You know, if you look at how the NSA worked, you see how the NSA effectively used the United States' position in the global telecommunications network, its access to many of these hubs in order to turn the world communication system, into a large scale machinery of surveillance. And the fear

that China might do the same thing with Huawei and on a far larger scale, because we now live in a world where 5G is turning ordinary things in to a kind of Internet of Things so that everything becomes connected.

We can see how the U.S. feared that this was going to be an opportunity for a country which had begun to see as a geostrategic competitor, to use commercial dominance as a means towards a different kind of dominance altogether. And we also see how the United States, in order to try and stymie Huawei, has turned effectively trying to attack its supplier list, attack its ability to -- actually to draw upon U.S. manufactured technical components, which are important to Huawei's dominance.

So, effectively this is a story of how networks on both sides are potentially being weaponized by states in pursuit of strategic dominance.

Now, this is a difficult and important set of questions that we need to confront especially in the United States-China technological relationship, because we are not going to get away, as Abe suggested, we are not going to get away from the fact that the U.S. and the Chinese economies are fundamentally dependent upon each other, they're deeply entwined in a way that it is going to be impossible to fully separate them from each other.

There's a lot of talk about decoupling, there's much less systematic definition for what decoupling is, far less actual real and sort of inquiry into how it could successfully be accomplished, and this is for the reason we think that it is going to be very, very hard to pull off on anything like the dramatic scale that some of the newspaper headlines of the last couple of months have suggested.

So, instead, the United States and China are going to have to work out a *modus vivendi*, they're going to have to work out a set of rules of the road, which aren't going to remove the jockeying for power, aren't going to completely get rid of the strategic problems, but at least can turn them into something that can tolerated in a situation where both of these great states are going to find themselves economically joined at the hip, whether they like it, or whether they don't. Thank you.

MS. TAN: My turn?

MR. HASS: Yes.

MS. TAN: Right. So, after Henry and Abe's big-picture, sort of laying out the big picture, my research plugging into this group, really refocus is on the narrower topic of standards setting. And I'm

going encourage the audience here to think a little bit more about the domestic politics happening in China, and how that feeds into the U.S.-China strategic rivalry, and questions of economic interdependence.

So, I'll focus on standard setting because obviously it has become the object of strategic interstate competition, right, as high-tech standards come to carry not just benefits of interoperability, but also reaping a monopoly economic rents and carrying with them very tricky security implications.

And amidst this competition there's been growing attention and concern focused on an outward-looking Chinese state capitalism as a potential threat; a threat, not just to leading firms and high tech sectors, but a threat also to existing global standard-setting institutions and policy processes.

So, my piece of research in this group really questions these perceptions. The questions: assessments of Chinese standard setting as a product of a coordinated "China Incorporated," and a question's frameworks that portray Chinese standards as being driven by an overarching techno-nationalism.

So in the five minutes I'm just going to make three quick points. The first point is that while China is a one-party regime, the government's standards policies are more the product of an internal competition between powerful techno-globalists, and powerful techno-nationalist agencies, rather than a product of a coordinated China Incorporated Strategy.

This competition doesn't apply just to standard setting, it's deeply entrenched, it's long-standing, it extends to other areas of industrial and economic policy, and more often than not, it hobbles the ability of the Chinese Government to act cohesively.

The second point I'm going to make is that globalization in this deepening interdependence between the U.S. and China has raised the stakes of this interagency competition, and affects the distribution of power within the Chinese bureaucracy. And it's something that I think we need to pay a lot for attention to.

So as China has liberalized its economy and become more integrated with domestic -- with global economic institutions, this domestic intra-bureaucratic contestation over standard setting has become more and more intensified, rather than more and more coordinated.

To give one very important example, when the China joined the World Trade Organization,

as its major -- and a major event in its economic integration, WTO Rules on standard setting actually empowered the techno-globalist agencies within the government who advocate the adoption of international standards, strengthened the establishment of new standards through rather than around global standard setting structures.

These globalist agencies within the government, and it's important to remember that they're traditionally quite weak, right, they don't have that much influence compared to the more powerful economic planning agencies. And it's precisely global integration that has given these agencies much needed leverage to push for liberalizing reforms and internationally standard setting.

This empowerment effect led to an overhaul of the standard setting regime within China, the institution of new regulations when China joined the WTO to encourage the adoption of new international standards, and a domestic push for globalism as a path to technology upgrading which stands in sharp contrast to nationalist approaches that privilege indigenous standards.

But that's not the only story, right. This deepening global integration has triggered a reaction from the techno-nationalist agencies within the Chinese bureaucracy as well, and these very powerful techno-nationalist developmental agencies, like the National Development and Reform Commission, have fought to retain their policy influence over key industries, by exploiting gaps in the global regulatory structure.

So, while we have very detailed rules for governing trade, we have fairly global rules for governing investment, and this is really important to understand, because control over investment approval is a large source of power for these domestic agencies, and in China investment policy is fundamentally intertwined with technology policy.

So, as a result it's these techno-nationalist agencies that have had the scope to set standards policies aimed at technology transfer and close collaboration through investment policy.

So, the third point I wanted to make is that depending on this interaction between the global regulatory structure, the trading system, the investment system and the domestic political competition within the Chinese Government, you can have many different outcomes, right.

The Chinese standard strategies could alternately strengthen, maintain, or reshape the existing global standard setting landscape through a variety of channels. And it's driven not by a

coordinated China Incorporated, but by different sets of domestic agencies.

And to bring this back to the current interstate rivalry between the U.S. and China, one intended consequence of U.S. policy is to decouple the U.S. and Chinese economies, is that these policies have generated negative feedback effects that undermine whatever leverage the techno-globalist agencies have had to advance their agenda.

These policies have ended up empowering the very techno -- the very techno-nationalist agencies that the decoupling policies are meant to guard against. Enlarging the policy influence of the nationalist agencies in the domestic bureaucratic contest, and in this way the technology conflict in Chinese State Capitalism, have ended up becoming a self-fulfilling prophecy. Thank you.

MR. HASS: Thank you very much.

MR. HUANG: Okay. So, thank you for having me here. So, I just want to, a few observations about a topic related to today's -- the panel. The first one is about the interest of China in terms of this decoupling. I think you may know that's the official stance of Chinese Government is not -- China is not interested to decouple from the U.S.

And I think that the two economies -- I mean collaborate and work pretty well in the last decade or so. There's a word they invented called TwoAmerica, two countries married together and by (inaudible), and one used the other's terminal, the other use the other's labor and worked very well.

But now somebody come on with the idea of decoupling, and I think the Chinese and Chinese company, and Chinese Government they feel very, very uncomfortable. That's first, my observation.

And now the second thing is that, so if you have a lot of -- actually to see from China's side, it's coming from the U.S., U.S. side. So if the U.S. takes actions, and the Chinese has to respond, and a lot of responses are not very prepared, and then if U.S. -- continue down the road that's to really sever the two economies, I think that will bring back to the feeling to Chinese, or Chinese Government, a bit of the idea of déjà vu in the late 1950s when Soviet Union put off all its experts from Chinese First Five-Year Program.

And then basically all of Chinese high tech or media tech project, military development project was stopped because of the Soviet Union experts left, but somehow China find out it has to build

self-reliance on its own capability, and then reemerge from the scene.

So then what are the consequences of that? If we learn from the history of that part of history, it says China was not hurt, actually China built up its own system, manufacturing system, industrial system, and which today China has to -- China is the only country in the world has all of manufacturing sectors, cover all the industry classifications, defined by U.N. It's the only country in the world.

And so the consequences for China actually, for many Chinese, probably it's not bad. So, then who are going to suffer more from this decoupling, a lot of Chinese think probably it's not China, because if China can buy from U.S., actually will work very well for Chinese company, because they don't need to put so much effort to upgrade the capability in that part of the company bit, it's very hard, it's the crown jewel of the high tech industry, and China has difficult to grapple -- I mean to grasp in a very short time.

But now it was not -- it becomes, no choice, it has to develop it on its own, then it's got to be done, and then a lot of the incentive will be put on that. One example of that is that the other instant of Chinese Government just exempt off -- the value-added tax for all software companies in China.

So those companies benefit from all the suffering, but then it will actually promote this industry, and then we'll create incentive for more talents to work in this industry as software engineers.

So, the second point is about, if China has to put up self-reliance maybe it's not bad for China.

The third point, I won't argue that the winner or loser in this decoupling trend, decoupling game is hard to tell. I think for each country there are winners, there are also losers. That's just I put an example for the software company in China, they are winners of this coupling because of the -- they don't pay tax, value-added tax at this moment.

But there were losers -- right, the losers who are not able to purchase advanced equipments, they will fall off the value chain, they will go out of business.

I think also for the U.S. it's the same. For the U.S. high-tech companies, basically you sell technology to China, but technology is -- the value is not eternal, the next-generation technology when it's invented, the past generation technology will be obsoleted. There's no value.

So, if you don't sell you don't have value of the technology that will be replaced later. So, then for U.S., the high-tech company, if you don't sell to China, which is largest market probably in the technical products, you are probably not able to sell the other big customers. So, there are also a huge risk for U.S. high tech company, especially for the balance sheet. And they will -- their stock market price will be hit if they really go down that road.

And for China it's the same. As I said, they are losers or winners. So, I think it's hard to really calculate, at least from my point of view, who are going to benefit more in this big trend. So that's why China doesn't want to decouple.

Okay. I'll stop here. Thank you very much.

MR. SEGAL: Thank you. So, I'll just pick up with some final thoughts primarily from the U.S. side. And I was most interested in the larger point that Can Huang was making about who is going to win or lose from this competition. You know, we've had 30 years of globalized innovation. The two biggest beneficiaries were the United States and China. I think it is clear that both sides are trying to reduce vulnerability.

How do you think about how that is going to energize the two different innovation systems? What type of outcomes is it going to create? And my basic assumption starting in was that in fact the U.S. is probably going to be hurt more in some ways, given that our innovation system has been driven so much by openness, and many of the policy tools that you would need in a more closed system are either unavailable to us, or hard to mobilize.

But I think having -- the Council produced a task force last week on U.S. Innovation and National Security, Chaired by Admiral McRaven and Dr. James Manyika, I have kind of three big thoughts about where we are in the debate, about how the U.S. is going to respond, and these are more questions than answers.

The first is, is more of the same enough, right? And the task force, to be quite honest, is a response to the traditional tools of U.S. Innovation Strategy. Funding for basic R&D, openness to immigration, ensuring STEM pipeline, making sure the DoD and the private sector work together, and working with our allies.

So, looking at all the old knobs and turning them to 11. I think there is a growing debate

about, is that enough. And the task force touched on that by talking about moonshine approaches, but if you look at Senator Warner's speech last week at the USIP, and the legislation that's been introduced, or some of the papers produced by Senator Rubio, that we need to have a discussion about industrial policy, or something that looks like industrial policy, or, you know, industrial in the U.S. context.

I think we are moving into a world where a lot of people think, okay, it's not enough just to slow China down through the export controls, but are there new policy tools that we should be adopting to try to speed faster other than just increasing basic R&D which is important and useful, and we definitely need to do.

The second is more of a rhetorical question, because the answer is yes, or a lot. How significant is the lack of technical knowledge in the government when you're designing these policies, and you're designing the responses to China?

And here, everything I hear from people, both on The Hill, and in private sector is, the policies are often designed with very little understanding of second order, or third order, much less fourth or fifth order outcomes, especially when we are talking about supply chains, and how you might affect those, move those, decide which companies you're going to move up the value chain, or how those gains are going to be captured.

Lots of ideas floating around: how do you address the technical knowledge gap, bring back the OTA, more fellowships, more flow between people? But that has to be happening now. We have to have a much better sense of the technologies involved, and how they're actually deployed across the range of sectors, right. AI is not going to look the same, as quantum is not going to look the same, as semiconductors, even though we are all lumping them together as emerging technologies.

And the final rhetorical question is: how important it is that we don't really seem to have a single voice coordinating mechanism for this strategy? So, I think there is a fairly broad consensus that technological competition with China is important, there's a national strategy, there's a national requirement. But again from what I'm hearing from the private sector and from The Hill is that there are many voices, often competing, and not explicitly being driven from the executive agency.

I mean, I think you can read, again, some of the legislative suggestions from Senator Warner, for example, to create an office of critical technology as an attempt to kind of force the White

House's hand and say, you know, if you guys aren't going to do this out of OSDP or any -- or the NSC we'll create an alternative.

But there seems to -- from my perspective -- to be a need for, and a desire for a comprehensive view of, again, the technologies that we're worried about, the technologies we're competing over, because there's nothing to be gained from framing all Chinese technological advancement as a risk to the United States.

Clearly there are some sectors that are much more sensitive than others, some we have more control over than less. And so where is that comprehensive view going to be? DoD is certainly putting something together because it's worried about supply chains and competition, but is that the same list that commerce, and state, and others are looking at?

So, I'll stop there on the kind of larger policy questions.

MR. HASS: Well, thank you all. This has been a tremendous start to our conversation. I think that we have already seen original thinking at work here with weaponized interdependence, a fresh, original path break in argument. The idea that China is not a monolith where everyone is marching in a single direction, there is actually intense friction within the system.

The suggestion that we may be in a 1950s like moment in 2019 with China and the Soviet Union, and now China and the United States, and then the questions, some very provocative questions that have been on the table by Adam, about how the United States is and can be responding.

So, there's a lot for us to chew on here. If I could I just want to start a bit chronologically. I'd like to ask all of you, or as many of you that's interested in jumping in on this question. To help us understand when the psychological break point occurred? When did the United States and China go from doing the economic relationship as mutually beneficial, and leading to increased efficiencies, to all of a sudden becoming seized by vulnerabilities, and taking more of a defensive crouch, to try to protect against risk of exploitation by the other? Huang?

MR. HUANG: Yeah. I think for a very long time in China's policy circle, they were saying that China cannot rely on foreign supply with critical technologies, because the most critical technology China cannot buy from the suppliers. That's what I've been saying for maybe a decade, so at least a very long time. But nothing has happened, so people don't tend to believe that it will happen until the ZTE

incident in 2017.

I think that's the very moment that -- I think it's watershed the event if you look back in future, back to -- in retrospective. That will actually change psychological -- but for Chinese policymaker that things can happen, that one, big multinational company with 80,000 employees can be killed in one night, no major disaster can kill a company in one night, because the multinational company they've learned to adapt to the natural disasters.

They will reduce the risk by well-managed the supply chain, they will not put all the basket -- no, no, all the eggs in one basket. But they're not prepared for government force, and no company can survive facing the most powerful government in the planet.

That creates the urgency for China's policymaker and business community that this can happen to us one day, and one year later, it happened again to Huawei. But Huawei is not any company in China, Huawei has prepared for this for 10 years at least. The CEO said that. So Huawei decided not to sell to Motorola, they only decided, we will compete with U.S. in the top of the hill in the future.

So they're prepared for that moment to happen. That's why they have the plan B in place for 10 years, and that's why they cannot be killed in one night. So I think that's the moment that I want to answer the question.

MR. HASS: Thank you.

MR. SEGAL: I mean, certainly the DoD has been worried about supply chain vulnerability in China for a long time. I think, psychologically there was a beginning of the shift at the end of the Obama administration, in particular if you look -- I always, I think point to the PCAST Report on semiconductors, and the DIE Report which came out in the first months of President Trump but it was, you know, in play at the end of the Obama administration.

The PCAST Report on semiconductors basically says, you know, that we are now in a real technological competition with the Chinese. They have these national plans, their overseas mergers and acquisitions; they're purchasing really important technologies. We still think we can outrun them by openness, but we may have to resort to other more interventionist policies or sanctions against China.

And then on the DIE Report, that really, I think, flipped the switch on suspicion about Chinese technology -- Chinese investments in early stage in the United States, and that, you know,

CFIUS is not going to work -- is not working the way that it should, that there is just a much broader effort to get around controls in place, and that we have to be much more sensitive at that.

Those two documents, I think, were really important in kind of shifting the policy community. I think also, you know, there of course was Xi Jinping coming to power, and consolidation of cybersecurity law, and the creation of the small group, and the beginning of what clearly looked on the Chinese side, of efforts to reduce their own vulnerability but by squeezing U.S. tech companies that shifted the business community in the large part.

MR. NEWMAN: Let me just add that I think that the -- in many ways September 11th, and the consequences of September 11th play -- continue to reverberate in these conversations, and so what I mean in particular was that after September 11th, the U.S. Government started to think about alternative tools in order to fight terrorism, and they focused very much on how global economic networks could be used in that fight.

And so if you think about the SWIFT system, which is the global banking system, though it's a secure messaging system that banks used to make bank transfers, the U.S. Government targeted that system as a way to basically know what adversaries were up to, particularly terrorist adversaries, but also rogue states was used then in the Iran Sanctions Program.

In addition to that, the NSA programs that were used to tap into global Internet infrastructures also did the same thing, where it said global economic networks can be a tool, kind of a forensic tool to figure out what adversaries are doing.

And these all came to the head in the Snowden revelations when it was made very public of how global economic networks were being used for coercive ends.

And I think if you see some of the responses by China, but also by other, you know, global actors like the European Union, there was an effort to buffer themselves from -- and insulate themselves from how these global economic networks might be used in a coercive way, and the cybersecurity law, the data localization requirements in China, I think are very much a reflection of those concerns that were put on the table during that process.

MR. FARRELL: Just to point out that there are two words which have not been uttered by any of my fellow panelists, they are Donald and Trump. (Laughter) And there is a good reason for

that, which is that it's very clear that most of the stuff would have happened, albeit in a slightly different way if Trump had not been elected as President of the United States of America.

That the security shift had already happened, as Adam said, towards the end of the Obama administration, a Clinton administration would likely have been quite hawkish on these issues as well, and probably would have been more consistently hawkish, and would have not had the persistent tendency that President Trump has had to try to bargain away concessions over ZTE, or Huawei, in return for trade things that he views as being more important.

So this is, you know, this could have happened a variety of different ways, but it really is a structural transformation that has happened, which is being exacerbated in some ways by the chaos and craziness of the policy-making process under Trump, but which is not a product of it.

MS. TAN: So, I totally agree, and I think that the structural frictions between the two countries go back and predate the current dynamics. So, I think, Ryan, the question you ask is really interesting, right, like when did this all start? And there are a bunch of explanations out there, kind of all floating around in the ether.

Some think of Made in China 2025 that was issued in 2015 as this, you know, critical moment, some attribute it Xi Jinping coming to power, and his centralization of power and everything he's done domestically. Some attribute it to 2008, in the global financial crisis because China's huge stimulus, you know, kind of supercharged the role of state-owned enterprises within China.

Personally, I think that the more important turning point predates all of that and happened around 2006 with the issuance of the 11th Five-Year Plan that really kind of focus -- plays much more policy focus on indigenous innovation, and it coincided again with this dynamic I was talking about earlier with external leverage, it coincided with the completion of a lot of China's WTO accession protocol commitments.

So you had this declining external leverage and these developmental agencies kind of pushing their industrial policies, and what's really important to note is that if you -- I think that it predated all of these events because -- it's because if you look at the data, right, the AmCham Survey Data, the survey the firms every year, it's around 2005 that business sentiments really started dipping.

If you look at the USDR reports on China's compliance, it's around 2006 that the tone

really starts shifting to become a lot more negative. So, I think it's important to look back, kind of not get too distracted by what's going on right now.

MR. HASS: Well, thank you. And in that spirit I want to pick up on one thread you had which was indigenous innovation, this idea that China will become much more dependent upon its own sources of supply, and much less willing to trust that the United States will continue to provide the inputs needed for China's continued economic growth.

And I think it was either Henry or Abraham that introduced the idea that ZTE and Huawei may have effecting accelerating, China's push towards indigenous innovation, and reducing its reliance upon American sources of supply.

I also hear the argument from friends in Washington that China was going to do this anyways, so it doesn't really matter that much. How do you guys come out on this question? Does it matter? Or is China already preset on a course of becoming more dependent upon itself, less dependent upon us, and ZTE and Huawei are sort of immaterial to them on trajectory?

MR. HUANG: So, I think, from the policy, from the paper, China always want to have a self-reliance on the critical components, but in reality, many company has no incentives to do if they can buy from U.S. So, the paper in reality is very different, because that part of critical technology is very difficult to develop, and very advanced and will take Chinese company a lot of efforts, a lot of risk to develop and many -- company in China will say, if you innovate first we can die first.

So the huge risk to develop those critical technology that's why, in paper, it sits very well, but in reality, nobody (inaudible) it until the ZTE instance. Because ZTE instance shows that it can happen, so then rather die in sanction, maybe you in innovation.

MR. SEGAL: So, I think that the sense that it doesn't -- I mean, I think that's right. I think the Chinese have been very clear that they want to reduce dependence over a long time, but the -- and they've been trying. And I'm glad Yeling brought up the mid- to long-term plan, because you don't get to talk about it much anymore, and it's good to bring it back.

But it is all in the mid- to long-term plan, and all these things were out there, but when we say it doesn't matter, then basically we are just -- and I think it's popular now, and it's just like, oh, domestic policy and China don't matter anymore, right, because Xi Jinping has made the decision, and

they're all just going to go down this -- and it's all inevitable.

And I think, you know, part of that is the backlash against the engagement and everything else. But, you know, as Can Huang said, there is still domestic politics in China, and it is clear that, you know, they were never the dominant voice, there was a voice in China that said, yes, we want to move towards reliance, but we are most likely to do that through the way we've been doing it the last 30 years which is through opening up and engaging supply chains and in investing it.

Those voices were, you know, already being silenced under Xi Jinping anyways, but the tech war certainly has pulled the rug out underneath from them. And now the resources are going to the techno-nationalist voices.

So, yes, they were going to do it, they would have just done it probably more slowly, of without tools and less intensity. But we always should have aware and we'd still, you know, that their goal was to release -- reduced dependence, which is what any large country would want to do.

MR. HASS: Yeah. So, I have another question for you guys. How innovative is China's economy? On one hand we hear stories about the 996 work culture, the Starwinian, you know, thrashing around in China's innovation ecosystem, and just the accelerating pace of Chinese innovation.

On the other hand, there are still people who say that China is more effective at process innovation and peer innovation, that they're very good at taking things and making them a little bit better. Where do you guys come on -- the underlying question is, how intimidated should the United States be about the progress that China is making in its own innovations?

MR. HUANG: So, I'm from business school, so we hold our a forum regularly with the Chinese top CEOs, and my observation is that China is very good in doing things from 1 to 100, not so good in doing from 0 to 1. And I ask this question to a top CEO of a Chinese top company managed by the Central Government, he agreed with that.

Because I just listened to his speech, and he said that, I only invest in R&D project which I saw the example of success in other parts of the world. And when my subordinate report to me about a new project, I ask him: Has anybody done that before?

The point is this, or revealing this. So I asked him, you know, openly that, is that the way you look at it? He said, yes, indeed. And many Chinese top companies they held the same view.

They're not comfortable in doing from 0 to 1, but once they saw -- say for example, they can very efficiently scale up to production capacity, and then to from 1 to 100 China is very good at this.

So, I think actually now, the U.S. is very good from 0 to 1, and China is very good from 1 to 100. The best, the two country work together, and not to fight with each other because each has its strengths and weaknesses.

MR. NEWMAN: So, I just want to pick up on Ryan's point about, how worried should we be. And this is I think, one of the insights of our group is that it really depends on what set of equities you're prioritizing. So, you know, and these often get mixed up in this conversation.

Is the concern that this will become national security threat? That there's some innovation by the Chinese in AI that will not just be an economic concern, but it will be a security concern? Or is the concern a kind of a -- that certain sectors are winner-take-all sectors, so if we fall behind then we'll you know -- or is the concern a China shock?

So, anyway, by identifying what the actual concern is, I think it really helps you think about how worried should you be, but the other thing, I mean at least in Henry's and our mind, you know, we are really concerned about the National Security Zone. You know, when is it, this innovation could threaten us? And for us it's really about these hubs, the control of a central kind of technology that everybody has to route through to get their products or processes processed, because that's where you get this choke point, the ZTE effect.

And there, I think, we need a set of rules of the road of, like, don't attack those hubs. You know, like the U.S. was in a period, it was almost like kind of Bay of Pigs moments where the ZTE and the Huawei cases, I don't think the U.S. Government even really realized how -- what kind of earthquake that would unleash in China, because they didn't really think about it in this way.

That there were certain areas of the technology chain, that if you weaponize those you're putting the existential life of a country's companies at risk. And so we really think about, which are those key hubs, and how do we then create a kind of a no-first-use policy around them.

MR. FARRELL: I think, you know, Tom Holm and I had a debate about this two years ago at CSIS, and we basically agreed. I mean, I think that's right. You know, China still does not have the system in place to create new-to-the-world, fundamental, science-based innovation. They're building

it, they're trying extremely hard, they're getting I think a lot closer.

But I think there are things to -- you know, it's going to come, there's no way it's not going to come so, you know, and quantity has a quality of its own, and even if, you know, Xi Jinping in many ways is moving in the wrong directions for the intellectual atmosphere, and the free flow of ideas, and all those other things, it's going to come.

There's just no reason to believe that eventually they won't be, given just the amount of resources in things like nano, and quantum, and synthetic biology where, you know, the U.S. is slowing itself down because of other concerns, that there is going to be a major breakthrough in China. And you know, 1 to 100 is pretty important, you know, over time.

And we know that the Chinese are -- it's incremental innovation, but it's really important business innovation and, you know, we all know from the FinTech side and everything else, that the Chinese are, you know, ahead and getting every farther ahead. so, I have historically argued that the U.S. is kind of lead, and kind of science-based innovation is pretty secure, I think that's still true. But I just -- I am less certain these days that the Chinese are not getting closer to the type of breakthrough that we think has been out of their reach.

MS. TAN: I mean I think it's a bit of a mixed bag, I mean, you see examples of tremendous successes, you read a little bit less about the tremendous failures, but there are also a lot of tremendous failures out there. And I think if you look at the successes, you know, some of the best companies and innovators that have come out of China have succeeded in spite of industrial policy, rather than because of industrial policy.

And so, you know, I think it's important to read national policies, like Made in China 2025 with a bit of a grain of salt. And it's not that the Chinese Government is so tone deaf in terms of what is required for a healthy innovation system, it's because of these internal coordination problems where a lot of central plans, you know, get distorted at local levels.

But that the Central Government itself, you know, I was talking about this with Professor Liang earlier, you know, the Central Government is about industrial policy has evolved as well to actually be a lot more open to market-based forms of innovation, and thinking about how to encourage firm-based activity rather than everything going through administrative guidance. So, I think it's a really mixed bag.

MR. HASS: Okay. I want to be a bit dramatic for a second. Abraham talked about decoupling as something where we both poke each other's eyes out and we all become blind. Can Huang talk about it as, well, maybe China -- maybe China can make gains here, maybe we can win.

So, how do you guys, as people who look at this issue for a living, think about this? Because those are two very different viewpoints, and I just want to draw both of them out so that the audience has the benefit of those perspectives. Are we all going to become blind or is one party going to win?

MR. FARRELL: Okay. I'll jump in first, which is, that as I said, decoupling is one of these words which nobody quite knows what it means in practice. You know, it clearly means that in some way or another the Chinese and the U.S. economies would become disengaged from each other. You see aspects of this which are already happening in the tech and innovation space, the greatly increased suspicion of Chinese-born scientists in the United States.

You know, you can see also that's happening in supply chains, you can see a lot of stuff happening, but when people talk about decoupling, I think they usually mean something which is much, much, much more substantial and much bigger than that. And so the question is, how exactly -- you know, how exactly can you scale up decoupling on a mass level?

And it's really, really hard to do. We've already heard about how difficult it is for China to actually do stuff. That there are grand pronouncements implementing them through a very complicated and contested policy system domestically is really hard.

We see that with the United States as well. The United States Government has tried and failed for a period of, of I don't what, 15 years now, or something like that, to try to get through comprehensive cybersecurity legislation. The United States, you know, when it comes to imposing regulations on business it's very, very hard to get stuff through Congress. So the United States uses things like procurement policy, it uses standards as ways to try and achieve these goals secondhand, but it turns out to be very, very difficult to do this really comprehensively.

So, I would love to see -- you know, I think that the answer to that question as I say is that, I don't think that decoupling is going to happen on anything like the scale that people says that it is, we are clearly going to see some decoupling in that -- especially in obviously sensitive sectors.

We are going to see a move on both sides to try to separate supply chains to protect against a variety of threats, whether those are subversions of the supply chain is one threat, whether it is removal of key elements from international supply chains in order to cripple companies is another.

We are going to see that shading to some degree into a variety of other sectors, because we are not in a world where pretty well everything has potential security consequences. You know, self-driving cars is one obvious thing, where, you know, if you think about how they could have very unfortunate security applications if they were compromised.

But it's not going to be possible, I don't think, to really decouple on a comprehensive level, most because the economies are too deeply interpenetrated with each other, and because neither side has the tools that they would want to really impose this on the micro level on businesses that are going to have different interests, and different commercial interests, which are going to push them much of the time to want to work together with each other.

MR. NEWMAN: Yeah. And I would just say, I think that the word "decoupling" is a bad word, and I think we should -- I think we should avoid it, because I think it gets away from the real question which is, how does interdependence between these two economies create vulnerabilities? And when you say decoupling you could mean anything, you know, it could be like, we are going into France. Do you know what I mean? France has a lot of regulations about how people enter their market, use their market. Is that what we mean?

We don't really need to say because we don't like to talk about regulation in this country, but you could imagine a form of evolved U.S.-China relationship that is just, we have more rules about market entry and use. Do you know what? China has a lot of rules about market entry and use, and it's not like a strategic conflict about it. It's like, oh, we don't like that, or firms would -- like less joint ventures, you know, like.

So, you could imagine a relationship where it's like interdependence and vulnerabilities where we are targeting those things. If you really go down the path to decoupling, I mean we are seeing the live-action train wreck that is happening in Brexit, which is real decoupling. That's what you're talking about. And the fact is, it's that that is not what we want. You're like, the consequences of that would be really significant. I think it's much more productive to think about types of interdependence raise

vulnerabilities, how do we address those vulnerabilities?

SPEAKER: Very quickly, we should think about mitigation rather than decoupling.

MR. SEGAL: I really think it depends on where we end up in the debate on this side, quite honestly. So I mean I agree with Henry and Abe that, yes, if you're thinking about as there are these vulnerabilities, they exist in certain technologies or supply chains, and you want to mitigate those, then you think about, you know, you decouple a little bit, or you reduce the vulnerability in this sector, but it will be fine in that sector.

But reading some of the speeches most recently that have come out of the administration where they have basically are talking about the fusion of the party, state and the technology sector that -- especially when they refer to civil military fusion, that the two are now essentially inseparable. And that, you know, anything we do with the Chinese, or any technology company -- Chinese technology that benefits then benefits the Communist Party, and surveillance, and repression, and military power projection.

Then, you know, I don't think it's realistic that we fully decouple because don't -- I just -- you know, from a practical perspective, but that strikes me that becomes the goal in some people's mind, when it is no longer just a mitigation contest, it's an ideological context across the board, which is, you know, it's a much different type of competition.

MR. HASS: Great. Thank you. Another issue that gets raised on occasion is this idea of the emergence of separate technology blocs. With the United States leading a bloc mostly of developed countries, and China leading a bifurcated bloc of mostly developing countries, on a scale of 1 to 10, with 10 being most likely, 1 being least likely, how likely are we to see that type of dynamic emerge in the coming decade?

MS. TAN: I will take a risk and go first. I think if you look at countries outside of the U.S. and China neither of -- most of them don't want in a bloc. I think most countries want to be, you know, engaging with both the U.S. and with China.

MR. HASS: Good. Anyone else wants to jump in on that one.

MR. HUANG: I think there's some possibility, so if U.S. really push hard in this direction, because definitely this is not China's interest. So, we get a three standards on 3G, mobile telephony, and

two standard in 4G, only 1 standard in 5G. Because why? Because company will realize that if you have too many standards, you're going to duplicate your efforts to develop the equipment for multiple markets in ways of the -- in resources to achieve the same goal, not even one standard you can include everybody, and you just need to manufacture one set of equipments, that sit.

So I think then what about 6G? So if U.S. pushed down very hard on this time, maybe 6G there will be two standards. I don't know. There's a probability, but that's not good for everybody. Not good for the U.S. bloc, not good for Chinese bloc, not good for any equipment manufacturer, not good for European manufacturer either.

So I think the bifurcation system is not economically optimal, it's politically viable, but economically it doesn't make sense.

MR. SEGAL: So, I will speculate where it could emerge. I don't think 5G is likely I think -- or 6G for that matter, because I think, you know, most of the countries that we are trying to convince not to use Chinese products are basically thinking to themselves, look, I'm going to get spied on by both the U.S. and China, and it really doesn't matter what I -- it doesn't matter what I do, and I might as well at least the product from the U.S. and the best product from China, and I'll get spied on. That's what going to happen. (Laughter)

So I don't think that's going to be on 5G and 6G. It could be on things that are data intensive, so on the surveillance or big data, and how that data is gathered and used. To the extent that this increasingly becomes a value competition between two systems which, again, I'm not sure I believe that it is, but that is how it's being framed.

Then especially if the U.S. and the Europeans could get, you know, a true agreement on data privacy and transatlantic data flows in places, which is unlikely to happen, but just say we could, then I could imagine people saying, yes, I like this system better, about how data is treated and used, and I am not really comfortable with how it's being used in that system.

But we are a long way away from getting what that common European-U.S. view is, and it's easier for the Chinese to, you know, right now go to countries and say, you want a smart city, great, we are going to build it, here is all the capabilities, here is what you can do with all data.

MR. FARRELL: One possible way in which that might happen and this turns to what I

was saying about the weaknesses of the U.S. State, might be through effective U.S. regulatory outsourcing to the European. And this is already happening in some ways, with respect to privacy. If we think about the influence that GDPR has had upon U.S. privacy debates.

You know, it's very clear that more or less what happened is that the U.S., for a variety of political reasons, wasn't able to get together its act on some form of comprehensive privacy legislation in order to push back against European pressure in the space, and now the Europeans have effectively managed to seize the leads.

So you could see this happening in a variety of other relevant regulatory areas where the U.S. is not particularly happy necessarily with everything that Europe does, because Europe tends to be much more rule-prone than the U.S. is, but that the U.S. would prefer a situation in which somebody with roughly compatible values were setting rules that had effective consequences for multinationals with a presence in both these economic spaces, and becoming a tacit rule acceptor rather than a rule leader.

MR. HUANG: I have one point. So, I agree with Adam about the data and regulation of data. I think that part is rather easier to handle for multinational company, because like Huawei the CEO says, we'd like to stick to GDPR, we like the European GDPR, we want that to become -- we will comply with that. So if the issue is compliance with different rules and regulations, different country, that's not new, that the multinational company does it all the time.

So I think that is not dramatic. What is dramatic is that you have a different system which cannot talk, we cannot be interoperational with each other, and that will be a negative impact. For the soft regulation part, I think that's not big deal.

MR. HASS: Well, you guys have put a tremendous amount on the table. I want to give our members of the audience a chance to weigh in. If you have a question, please raise your hand. We'll start with you.

SPEAKER: Yes. I just have a question, I think coming out of this was this idea of really (inaudible) the national security. And for people like me who don't understand anything about technology it seems that there's a sort of no outer bounds of where this discussion will be going, and everything seems to be -- national security seems to be weaponized, always by China with sort of Xi Jinping's Comprehensive National Security Outlook, but now here in the U.S. we say that economic security is

national security.

Can you just give some thoughts on how it can be bounding, or at least defining national security in a way that there's a common understanding, not only between U.S. and China but countries around the world, and how that can keep pace with technology, but not hamper technology?

MR. HASS: If you don't mind, hold your thought on that one, and I'll give you a second to think about it. Does anyone else have a question? We'll take two at a time. This lady --

SPEAKER: Hi. I'm a Reporter from Zhengzhou Media Group. I have two questions for Professor Huang. You mentioned that it's a bifurcation of the supply chain, it's not economically viable. Can you elaborate to us more about this? And the two questions is, could this U.S.-China technology tension, if the Huawei survival, can this be alternative for this company to promote the Chinese technology image? Thank you.

MR. HASS: The second question was posed directly to you, Professor Huang?

MR. HUANG: So, I mean, if bifurcation of a system, there are two systems, or three systems, it's not economically optimal. It can be economically viable, but the company just paid the cost and developed three systems for supply the whole -- to serve the whole world, but it will have -- incur higher cost than if you just develop one system.

And about the survival of Huawei, at least now it has not been killed. So according to the CEO, it's very hard to kill. And I think by then we just had discussion in the morning session that the Huawei CEO put forward an interesting proposal, that Huawei won't licenses its 5G technology, including blueprint, patents or tacit knowledge to American company.

So, our colleagues say this is a bluff, and the media also say that, but my view is that this can be a real offer, because my view is that there's an imbalance here. The most powerful country in the world has no 5G manufacturer, and 5G technology is going to transform the whole society. How come the most powerful county in the world has no manufacturer of this most powerful technology in the next decades?

That's why the U.S. has incentive to stop Huawei, to supply more to more countries. But then if Huawei created a competitor in U.S. or other company in U.S. can manufacture that, Huawei has competitor here that will become a harmony. That will become more balanced. Then Europe has

manufacturer, China has a manufacturer, U.S. also has a manufacturer, then we see each other in 6G. So, I think that can be a real offer. And, by the way, we wait to see the outcome of that.

MR. HASS: (off mic) on security?

MR. SEGAL: Basically I think it was bound before because of the bilateral relationship and multilateral institutions. So, in 2006 when the mid- to long-term plan came out and indigenous innovation, you know, was promoted as a Chinese policy it was a concern, it was on the U.S. agenda but there were so many other things on the agenda, right. North Korea, Chinese national problems, all the other things we were working with, with Beijing.

And so, quite honestly both sides said, all right, this is important but this is not the thing that's going to disrupt the agenda that all the other broader things that are going to happen. And now that we are, you know, confronting China across the board, these tech issues are all-expanding, because they fill all of that space.

So, you would have to get the other parts of the bilateral relationship in place so you could then have those discussions. The other is of course, you know, the WTO says, yes, you can have national security exceptions for what you're going to do, but right now, nobody is relying on the WTO to make those judgments.

So, again, we would have to go back to a time when both China and the United States thought that those multilateral institutions or the -- you know, I don't think it's a great venue, but the open working group on -- whatever they're calling it -- information security or cybersecurity at the U.N., which is, you know, the competitor to the group of government experts.

The Chinese submission says, you know, we need to talk about supply chain security, and what you're going to do about tech companies? You know, and the U.S. of course doesn't want to touch that in that venue.

But you would then go to these international institutions, but now that both of those things have been weakened, I don't see how you get back to the -- you could have those discussions without getting those other things in place.

MR. FARRELL: Just one thing to add, which is that there are different ways in which we can think about security here. One is the standard way of thinking about national security, and the other

is to think about how many of these problems can be solved better from an information security lens instead.

And here, for example, people like Bruce Schneier has a wonderful and lively entitled book, something like, *Press Here to Kill Everyone*, which talks about the security weaknesses of the Internet of Things, which very often come about not because these are things that have been designed specifically to be penetrated, but because these things have been designed to be extremely cheap, and security comes in as a consideration at the last moment, to the extent that it does at all.

So, one question of which I think we tend not to focus on here in debates in D.C., because we tend to be more policy and internationally oriented than technologically oriented, it's to what extent can we look at redesigning so that the attack surfaces of these things are limited, so that we have much less trusting devices, thinking about mitigation, and this can only go so far.

And also has to go together with a stronger regulatory approach than the one we have to date, which goes back to some of the problems discussed already, but nonetheless there plausibly is quite an amount that you could do without getting into national security space to address the massive and ever-expanding insecurity of the devices and the things around us in the world.

MR. HASS: Go ahead.

MR. NEWMAN: I just want to also say that, I think that in many -- there's this vision that everything is a security risk, and it's just ever-expanding. And you know, IP doorbells, they are a security risk now. You can do anything with Chinese technology. But I think actually like, if you look at what the intelligence community and the Department of Defense have been saying, they've isolated a very kind of core set of technologies that are risky technologies.

And I think if we listen more to those flags, and they're not just saying that you can't use those at all, but they're saying, like, maybe these shouldn't be core, you know, geostrategic assets.

You know, that there are onions, those layers of the onion where the security risk is and where it isn't. And so we really just need to pay attention to those red flags and then say, okay, how do we address those. So, I think that's kind of a core lesson I would take away.

SPEAKER: Hi. A fabulous conversation. Car pools in a lot of my work has to do with wealth concentration and evolution of capitalism, so I'm just wondering if there's separation between the

U.S. economies and China, is there a political risk internally for China? This is the first meeting I've ever been to where I've heard about some of the political economy of China, that there are competing bureaucracies.

I'm used to trade associations, their CEOs come and talk to the academics, and somehow they're all communicating with a very centralized thought. So, if you have slower growth as we've seen, it's less of a win-win economy, and you have one risk, you've got to do the stuff yourself, and will there be more conflict between the powerful and now wealthy actors in China?

Like when the Soviets left they were all poor, and now you've got lots of money, so who is going to -- how does that -- how does the government, how do you guys solve those kinds of conflicts? You know, and how will that happen, and I'm more -- you know, more zero-zero sum game environment? Thank you.

MR. HASS: Thank you. I think we'll take three questions this round. So, if you don't mind logging it away. I saw Martin's hand next.

SPEAKER: Thank you.

MR. HASS: Sure, go ahead. You have the microphone, and then we'll go up here.

MR FATELING: Sorry about that. My name is Peter Fateling, and I'm working for the European Union Delegation here in town. And you have been talking about allies, and now I wonder if this is playing out here, this conversation here in the United States, what role do you foresee for allies of the United States around the world in this conversation? Thank you.

MR. HASS: Okay.

SPEAKER: I have a bit of a follow up on that, and drilling a bit into what Ryan was asking earlier about blocs. It seems like two of the most potent tools the U.S. is using more tight investment restrictions and export controls are really only going to work if we get a broad coalition together, otherwise it's going to be like, you know, the famous study on commercial satellite in which America eviscerated its domestic industry, and didn't actually prohibit the spread of the technologies.

To what extent do you think that Europe, and Japan, South Korea, Israel and others would go along with the United States and say through Wassenaar, make those export control multilateral and also have their own CFIUS style investment restrictions that would be much than what the EU has

done today?

MR. HASS: Okay. So we have three questions, one on wealth distribution effects, and the latter two on ally-related issues.

MR. HUANG: I'll try to answer the first question. So, I think there will be significant political risk if things don't -- won't be managed well. But I think the solution from China side as far as I see, is that they should take pain, because if you want to have a good deal you have to take pain. I think it's the same from the U.S. side. The U.S. also makes sacrifice in this trade war, the farmers, and so on.

But why U.S. is more eager to reach a deal? Because the U.S. wants more, better outcome in a deal, so it's for China. So I think both sides has to, if you really want to reach the better outcome, you have to -- you have to be willing to make sacrifice.

MR. NEWMAN: I'll take the last question, which is I think that this is kind of building on this point which is, I'm not sure that the U.S. Government right now has a clear strategy of what it's pursuing vis-à-vis China in the technology sphere.

And I think that the goal is to have an alternative 5G bloc, for example, if that's the vision, then what really, I think the U.S. Government should have done is first create like a NATO consortium where it goes to our allies and says, you know, let's create a long-term buying program from Nokia and Ericsson, and we'll create some alternative economic model so that that's successful.

And then you spring the trap on Huawei and you say, I've locked down all of our allies with this alternative vision, and then now we are going to punish, you know, this. But instead, the government sprung the trap but there was no carrot already to the ally bloc in place to create that kind of coordinated strategy.

And so I think now what you have is you have version where the trap was sprung, the allies don't know what to do, and the Chinese or Huawei can go to each one of the allies and use salami tactics to peel off, you know, Norway, you guy this, this or that.

So, I think the key in these, I'm not even sure that we want to have that kind of bloc strategy, but I do think whatever the U.S. Government is doing in the technology sphere it should be coordinated with our allies to think through what is a long-term strategy to maintain both our economic, but also our strategic security. And I don't have the sense that the current government is pursuing that.

MR. SEGAL: I think they're squandering quite honestly. I think there is a genuine European concern about these technology flows, you know, the European Commission, and others have noted it. The calls for CFIUS-like policies inside of the EU and Germany and France themselves, you know, separate from U.S. pressure, the Israelis are probably going to get there mainly because of U.S. pressure.

But I think there is a similar concern that -- you know, as Abe was saying, we could have gone about building it in a different way as opposed to showing up and saying, here is what you're going to do, as opposed to, what should we all do together.

MR. HASS: Does anyone else want to (off mic). Okay. I think we have time for another round of questions. We'll start with this lady here with the white shirt, and then Ken.

SPEAKER: Hi. My name is Liz Kim, I'm a Reporter with Voice of America, Korean Service. A few months ago, *The Washington Post* reported that Huawei allegedly helped North Korea build their mobile network. I'm wondering, how does that -- how is that critical for Huawei, and even for ZTE which was fined a few years ago for violating North Korean sanctions? And how does this affect the overall U.S.-China tech relationship?

MR. HASS: Thank you. And then we will go to Ken, and then the gentleman back here - - then the fellow in the front.

SPEAKER: Thank you for a fascinating conversation. You raised the issue of the (off mic) --

MR. HASS: Go ahead and repeat the question.

SPEAKER: You raised the issue of using regulations to address a lot of the concerns that are discussed on here. My question is, regulations take a long time to develop. There's a process for them, these are not done quickly. They aren't done quickly in China either where they require substantial bureaucratic processes.

Given the rate of development of technology, in artificial intelligence, in the Internet of Things, in quantum computing, and virtual reality, in 5K, et cetera, isn't it the case that as you try to develop new regulations the problems will have changed before the regulations can be adopted and come into effect?

In other words, we are dealing with an accelerating set of technological advances that are increasingly interacting with each other. How do you begin to get your arms around that in a way that builds confidence that everyone can play by the same playbook? Thank you.

MR. HASS: And then the gentleman with the gray sweater?

MR. WINTERS: Thank you. Steve Winters, Independent Consultant. I'd like to direct this to Can Huang. Could you make some comments on the Chinese view of the competition over scientific talent? Of course had introduced this Thousand Talents Program, and from all my reading of the newspapers, it hasn't gone over so well in the U.S., various people have gotten into problems here for being involved in that.

So, is China surprised by the U.S. reaction to the Thousand Talents Program? Particularly given that even today we heard here, and I constantly hear in D.C., the U.S. has to be open to the best scientific talents in the world all coming to the U.S. and helping us with our developments.

MR. HASS: Thank you.

MR. HUANG: Maybe I'll answer the third question. So, I think for -- China is surprised I think, but also sad to see what happened to those talents, those professors in the U.S. university they were charged, they were fired, they were targeted. Maybe they just traveled between these two countries, but when the political tide changed, they're the victims, I think in this trend of the time.

So for U.S., I think that -- I mean, I think the (inaudible) of the U.S. is coming from the talent that U.S. has tracked from all over the world. And then I think also, it's not going to be good for U.S. not to open the door for the talents, especially from China. So, that's my answer. Thank you.

MS. TAN: So, on Ken's very brilliant point. I have a couple of reactions. I think you're absolutely right, and I have two, sort of, reactions to that. The first is that this speaks to the need to do government differently, right, and to do regulation differently, and it speaks to Adam's point earlier about the need for greater technical capacity within governments, right, and it's not just the U.S. or China, it's every government.

And I think the second reaction I have is that this gap I think speaks to a de facto vulnerability that we all have to get used to. I mean, if you just think about it on a personal level. I know that if I connect to the Internet, and I have this mobile phone and a laptop, there are benefits to this

connection, right, but I'm vulnerable, regardless of how many patches I put on my computer, and so on.

I try to be a responsible user of technology, and I do everything that, you know, as I read out there in terms of how to protect my privacy. But in a certain -- to a certain degree there's always going to be vulnerability, so maybe it's, you know, on the one hand, we need to do government differently, on the other hand we need to stop thinking we can go back to a world where we are no longer constantly in the state of being vulnerable. And so we need to have a conversation about mitigation.

MR. SEGAL: Just on the Korea thing. I don't know anything about Huawei and North Korea, but ZTE is an interesting and complicated story which I think illustrates another aspect of the problem, which is that the United States, more than anything else, it is a state of lawyers. And so effectively what happened was that ZTE had broken, pretty flagrantly, had violated U.S. rules.

You can argue about whether or not the U.S. should be imposing these rules or not in the first place, had then agreed to a set of penalties, and then sought effectively to be dishonest about its compliance with those penalties, facing the U.S. was a very difficult choice.

You know, does it sort of ignore and pretend that it's blind? Or does it seek to then implement the penalties that it had suspended? And of course this turns out to have pretty dramatic consequences as has been discussed for the debate within China, but from the perspective of the debate in the U.S., I suspect that the lawyers who were involved, saw this as being a pretty cut and dried case where they had no choice but to impose these penalties, come what may.

And where they -- you know, so where they -- so they believe that they had little choice to do this, and were extremely unhappy, I would imagine, when Trump effectively bargained the penalty away in exchange for trade concessions, seeing this as something which would weaken the credibility of the United States when it sought to impose penalties on a well-connected firm abroad in future.

MR. HASS: Thank you very much. I think that we addressed all three of those questions. I want to give panelists an opportunity for a final comment, or parting shot, before we wrap up. I proposed that we start at end with Adam, and work our way back to me.

MR. SEGAL: You know, I guess part of the takeaway is, you know, the continued use of decoupling, which I'm going to continue doing -- (laughter) -- even though I think that the declining -- the declining usefulness of it. I don't know what to do with that, but I think the more we think about it, and the

more we talk about it in these venues, it clearly is not a useful comment, but I'm going to continue using it, so. (Laughter)

MR. HASS: So we have defiance from Adam. Can Huang?

MR. HUANG: So my conclusion, concluding remark is that the two countries should not decouple. It works better not decoupling. But final way to define relationship between the two countries, maybe in a first time in history that two countries has defined the route how to deal with each other and with countries.

MR. NEWMAN: I would just say I think at this moment, we are at the moment where the parties don't know the world that they're in. It's very similar to after World War II there were -- it's a new constellation of who the great powers are? What are the technologies at hand? And how should you go about interacting with each other?

And I think things like the ZTE case, or the Huawei case, I don't think there's like: oh, the U.S. Government had fully worked out what this was going to do, and how China was going to respond. I think it's very much a high level of uncertainty about, who the actors are, what strategies can they use, and what the consequences would be? And we all I think need to be just very cognizant that we are in this very uncertain world as we move forward.

MR. FARRELL: Just to agree with that and to say that, if we are moving into a world, it's not like the Cold War in many, many ways despite the facile comparison some people make. But some of the stuff that went together with the Cold War, that is the quiet discussion of rules of the road, the creation of a means to talk informally to figure out before you did something, what the consequences of that might be. All of these things could be extremely useful.

Also more generally, when we think about how to deal with it we should think mitigation, and we should involve much, much more than we have to date, technologists into the conversation so that we can have a sophisticated discussion about the circumstances under which we may be able to, if not eliminate security problems, because these systems are going to be irreducibly complex. At least minimize them as much as possible with technological rather than a policy -- technological solutions rather policy conflicts.

MS. TAN: I would say, let's not reduce the entire U.S.-China relationship to two

companies, Huawei and ZTE, right. The relationship is much deeper, and I would urge everyone to read an article by Ian Johnston in the journal *Internal Security*, where he maps out China's participation in international institutions across a whole range of different issues, right.

And it's really illuminating, it's really an illuminating exercise because you see China supporting, being a staunch supporter of some issue areas, wavering on others. You know, so it's much more multidimensional than just two companies.

MR. HASS: Thank you very much. I took away three big points from our conversation today. The first is that pure decoupling and it's impractical, a return to the status quo of pre-2016 is unavailable. The second is that just intensifying technology pressure in the overall relationship is having effects inside China, some of which may not be visible to the outside eye.

And the third is that we need to really work collectively to define with greater precision what the problems are, so that we can begin to solidify new rules of road for managing them, as Henry laid out.

But with that, I invite you all to join me in thanking this very distinguished group for elevating our understanding of the problem. (Applause)

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