THE BROOKINGS INSTITUTION

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GLOBAL CHINA: US-CHINA RELATIONS
THROUGH THE LENS OF TECHNOLOGY COMPETITION
A CONVERSATION WITH TARUN CHHABRA

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P R O C E E D I N G S

MR. MESEROLE: Hello, all, and welcome. I am Chris Meserole, a fellow in Foreign Policy at Brookings and the head of our AI and Emerging Tech Initiative. And I have the pleasure this morning of hosting a great set of discussions on U.S.-China relations and the challenges and opportunities that technology now plays in that relationship. To help inform our understanding of these issues, I am deeply honored to be joined this morning by Tarun Chhabra, the senior director for Technology and National Security on the National Security Council.

Tarun has worked extensively on a wide range of technology policy issues within the Biden administration including many that intersect with the White House policy toward China. So, we are thrilled to welcome him back to Brookings. Before turning to Tarun, I'll note that we will be taking audience questions for this conversation so, please Tweet your queries and questions to #GlobalChina, and we will work to include them in the discussion.

I'll also note that Tarun will be joining us until about 9:45, after which I'll be welcoming my Brookings colleagues Sarah Kreps and Melanie Sisson to our virtual stage for a follow-on conversation about U.S.-China technology competition and where things should go from here.

With that, Tarun, welcome again, and I look forward to our discussion. The place to start, I think, is really just with a high-level overview or even a scene setting of the administration's approach to China and tech generally. Obviously, there's been a great deal of activity in this space lately from the CHIPS Act over the summer to more recent executive orders on biotech and CFIUS. But it's not always clear, you know, how to connect the dots between them. So, would you mind just by starting out by kind of laying out a bit about how the administration is thinking about tech competition broadly.

MR. CHHABRA: Great. Yeah, thanks so much, Chris. It's great to be back with you and other colleagues at Brookings. So, you know, I think you probably saw, Chris, a couple weeks ago Jake Sullivan, the national security advisor, gave a speech about our overall approach to technology competition and he laid out really kind of four pillars of our strategy.

The first really being investments in our science and technology ecosystem. And in that

space, as you know, just over the last couple months alone, we've had really historic investments with the CHIPS and Science bill and then in clean energy technologies, of course, with the Inflation Reduction Act, as well. We also announced just a couple weeks ago a new biotechnology and biomanufacturing national initiative with an executive order and related investments as well.

The second pillar is really about people, it's about talent, nurturing STEM talent here in the United States, but also working with the Congress doing also what we can through executive authorities to really, from our perspective, capitalize on what is America's superpower, which is attracting the world's best talent and particularly in STEM fields.

The third is protecting our technology advantages. I know this often gets the most publicity in press in many ways. And it's obviously a crucial part of our strategy, but it's one among many pillars. And then finally, it's deepening our alliances and partnerships a focus on technology and strategic technology issues.

You know, just earlier this week, the national security advisor hosted his Israeli counterpart, for example, for an inaugural strategic high technology dialog with Israel. Earlier this year, we announced a dialog on strategic technology issues with India that will also be led at the national security advisor level. And then, of course, we've been working since really the beginning of the administration with the European Union on the Trade and Technology Council, and I've had the privilege of leading some of our work on critical emerging technology with the Quad as well and Korea have also been really critical partners in deepening our alliances as well.

MR. MESEROLE: It's great, Tarun. Thank you for that great overview. And I think for those who haven't seen it, I would encourage everyone to see the -- or watch the session with Jake Sullivan from last week as well.

I think it's probably worth kind of diving deep into each of those pillars that you just laid out starting with the investment pillar. The CHIPS Act and CHIPS and Science Act is obviously a hugely consequential bill and one that I think was kind of unprecedented in its scope, certainly in the modern era in terms of trying to incentivize greater investment in a core critical technology sector. You know, how

was the administration trying to think through the range of different equities involved in that kind of a bill and kind of balancing the need to get the incentives right as well as the kind of constraints and restraints to put on actors within the space?

MR. CHHABRA: Yeah, thanks. So, you know, the CHIPS and Science bill is something the president's just been personally committed to and supported for a very long time, something that was talked about even during the campaign. And we were, you know, just thrilled that there was strong bipartisan support for it. You know, it has a number of components. One component, of course, that probably got the most attention, deservedly so, is focused on the manufacturing element, which is bringing more semiconductor manufacturing onshore to the United States.

Obviously, a significant focus there is on advanced logic and leading-edge chips. But we also think it's important to have a focus on memory, but also some legacy chips, as well, given the important role that they play in our broader economy. And I think as some of you might have seen, the Commerce Department released a strategy paper a few weeks ago kind of laying out our overall approach here. And really, that's thanks to incredible work not only at the Commerce Department, but also among many colleagues across the U.S. Government and really careful planning over the last year or so.

But in addition to the manufacturing piece is a critical element focused on workforce, making sure we have the workforce to actually execute on this strategy, which is absolutely critical. As you know, there are requirements for workforce training in the bill. There are also really robust packages at the state and local levels of this on workforce training. But we also think that immigration is going to be an important piece of this as well. You know, 40 percent of the semiconductor workforce is foreign born today. So, we're likely to see a similar number, if not more, kind of over the next few years just given capacity constraints.

And so, we all have to work together and understand that I think on the workforce side, it's a supply chain issue. It's a national security issue to ensure that we have the talent we need to execute on this broader strategy.

The final piece that's really critical is on research and development, right? I mean, so, the United States needs to remain a powerhouse on R&D not just kind of in the current paradigm, but also for next generation chips as well. And so, there's a suite of R&D programs in there, focused on, you know, everything ranging from advanced packaging to the DOD commons program, to the National Semiconductor Technology Center.

And, you know, I think that's some of the most exciting work there that's going to hopefully stimulate more private investment including in startups in this ecosystem to not only leapfrog, but also drive down some of the costs in the sector as well.

MR. MESEROLE: That's great. I want to pick up on that issue of cost because I think one of the kind of debates and some of the kind of analysis around the CHIPS Act, I think there is still some questions around kind of what the overall motivation and agenda is in terms of the administration's concerns with the semiconductor space more broadly. They're kind of focused on the semiconductor space. Is this about trying to, you know, increase, you know, our capacity to meet demand for kind of consumer electronics? Or is there also kind of a broader, you know, national security imperative in terms of, you know, making sure that we're at the cutting edge, right? Because there's kind of making sure we can produce the chips we need for our economy and then there's also making sure that we're at the forefront of AI development for the long haul, and that our kind of technological capacity can match those of our peers.

And I think, you know, I'd be curious to hear a little bit about kind of how you or others in the administration are thinking about those two issues as it pertains to, you know, certainly the CHIPS Act, but just kind of more broadly in terms of the investment strategy.

MR. CHHABRA: Yeah, great question, Chris. I mean, I think, you know, technological leadership and supply chain security and resilience really are both critical objectives for what we're trying to do with the CHIPS Act, and I think really drove the bipartisan support for the bill as well. You know, and I think a good example of this is, you know, going back to your earlier question about guardrails, right? And so, you see this pretty clearly, I think in the guardrails that ended up being agreed in the bill

where, you know, one component of those guardrails is for companies that take either the tax credit and/or the grants, the restrictions on investments in leading edge production semiconductors in China, in particular.

But there's also a provision that imposes some restrictions on legacy production as well, expansions or new facilities where that production is not going to stay in China, right? And again, so that really, I think is a clear illustration that we've been focused really on both the technology leadership part both through the manufacturing where we're kind of really concentrating on leading edge, as well as the R&D. But also, on the supply chain elements as well, where on the investment side, there are, of course, investments in legacy production, but also on the guardrails side looking at investments that may, you know, maintain or deepen dependencies that we don't want to see.

MR. MESEROLE: Great. I think I want to come back to, you know, as we're walking through the kind of different pillars of the approach, there is kind of the, I think, Sullivan kind of listed the talent as kind of the second. But I want to since you just brought some of the restrictions on funding for, I think you were referring to some of the restrictions that were placed on firms that received CHIPS Act funding and kind of what they can spend it on within China. I think it might be worth pivoting first to some of the, you know, the efforts to protect American advantages in the tech space and dive a little bit deeper on that. Because I know, as you mentioned early on, that's certainly something that has gotten a lot of attention.

You know, in terms of thinking through, you know, how those, you know, whether it's kind of export controls or kind of restrictions on recipients of CHIPS Act funding, how is the administration thinking about, you know, what should fall under, you know, what kind of technologies to target, I guess, is probably the way to put it, right? Like what are the class of technologies, given that these are generally speaking dual-use technologies, you know, how far beyond just like very narrow bore, you know, restrictions on sale like advanced semiconductor, you know, manufacturing equipment, all the way up to general purpose, you know, CPUs, and other forms of chips. You know, is there a criteria that you all are using in terms of trying to think about what is it that we really want to restrict access to within China and

that we really want to really make sure that we're protecting American advantages on?

MR. CHHABRA: Yeah, yeah. So, you know, as the national security advisor laid out, you know, we think that something like the Pareto principle really applies here where there are a few families of technologies where our ability to maintain leadership in them, maintain a strong manufacturing base where that's key is going to be crucial. And so, you know, what he noted was there's the family of computing technologies, which includes microelectronics like we've been talking about. It includes some quantum technologies as well. It includes artificial intelligence applications to some degree. Second, he talked about biotechnologies, which is why we, you know, launched a national initiative in that space. And then third, on clean energy technologies as well.

And so, I guess if you look in each of those sectors or areas, what we're looking at is what are kind of really notal technologies, right? Where it's actually in many cases quite hard to develop some of those key technologies. They're hard to indigenize. That's not to say it can't happen, but it takes real time, and it requires building a bench of, you know, deep systems expertise and engineering, so on and so forth. And so, it obviously doesn't make sense to focus on restrictions where, you know, basically overnight you can replicate the technology. So, we're not necessarily focused on doing that. It also doesn't make sense to restrict a technology only to have the market share taken by, you know, the firm in another country and defeat the point of the control and simply have your own firm to lose market share either. So, that's where kind of the multilateral approach, right, on controls is really crucial as well.

So, I think that's a bit kind of how we approached some of these issues. But with respect to computing, you know, I think there is a pretty broad consensus about really, you know, the central role of semiconductor manufacturing equipment. As you know, Chris, kind of some of these tools are some of the most exquisite machinery around and really hard to replicate indigenous. Again, not to say that it can't be done but really with tremendous costs and it takes quite a bit of time.

And as the national security advisor noted, with some of these really critical technologies, we believe the strategic environment today is such that we can't maintain the longstanding approach, which is just stay a couple generations ahead. But we really need to try to extend absolute advantage,

just a different strategic environment, I think, than when we kind of laid that out approach and maintained it over a number of decades.

MR. MESEROLE: Yeah, I'm glad you brought up the national security advisor's statement on that because that kind of leads into how I was going to frame the next question. Which was, you know, for those of you who didn't see it, the National Security Advisor Sullivan made, you know, made a point about we're no longer trying to maintain, you know, a generation or two advantage in terms of leading technology, but we are trying to now move into an era where we're trying to maintain as much of a lead as possible, which is a bit of a departure from prior strategy and thinking.

And I bring that up because I think there's this other element of, you know, both foreign investment in the United States kind of, you know, into primarily, you know, venture kind of startups where the long-term nature of the technology is unclear, kind of the long-term trajectory anyway, and what it might end up being capable of is a little bit more unclear than say kind of a discreet, you know, form of semiconductor where we understand how the technology behaves pretty well.

Likewise, there's also been discussion about the, you know, outbound U.S. investment into firms in China and what kind of restrictions we might need to place on there, which is again, it's something that would be a little bit new. And I don't think we've really seen much aggressive action in that space before. Is the kind of increasing push towards new restrictions on both inbound and outbound investment is that kind of, you know, it's hard to target it to just one specific I think kind of category of technology if the technologies are themselves immature. And so, I'd be curious to hear a little bit more on the thinking behind those and what kinds of criteria might go into, you know, which kinds of, you know, outbound investment in particular, for example, like is it all AI firms? Is it kind of a narrow subset of firms in the space? If you're able to shed any light on kind of how the administration is thinking about that I know our audience would be of interest.

MR. CHHABRA: Yeah. Yeah, no, thanks, Chris. And I think you're right to kind of link the national security advisor's statement on maintaining absolute advantage also to some of the initiatives with respect to investment, as well. So, you know, you're referring to kind of new moves on foreign

investment in the United States. As you know, we released an executive order a couple of weeks ago, which was really the first time the president's kind of issued formal guidance to the Committee on Foreign Investment in the United States since it was established many decades ago.

And it really directs the committee to focus on emergent risks. And particularly with respect to technology-related issues, including the impact of certain investment on U.S. technology leadership, on supply chain security, on cyber security risks, on risks to Americans' sensitive data, among other things. So, we hope that that guidance kind of sharpens the focus of deliberations within the committee on particular transactions with an emphasis on all of those risks with an eye toward maintaining the critical advantages that we talked about earlier.

I think on the outbound investments side, what's really driven the deliberations there, and I think an agreement of the need to do something as we continue to work through the details of it, is that there really is a gap, right? If you look at our current regimes, you know, if we're looking at trying to prevent unwanted technology transfer. So, we have a robust export control regime and I'm sure we'll talk a little bit about that but that that looks at, you know, IP. It looks at, you know, transferring a particular widget. We have some of the foreign investment restrictions in the United States that we talked about earlier.

But what it doesn't address is what I think about is technology acceleration, right? Where you might have technologies being developed in a country of concern and then you have, you know, firms with really exquisite know-how about how to advance and scale the technology in a particular sector. And it's not just what they bring to the table alone, but it's also what they signal to other forms of capital as well that is also quite important.

And in sectors that really do have critical importance for national security, we don't want to see that kind of investment accelerating that kind of technology development. And so, we believe that we can really tailor this in a way that is narrow, appropriately scoped, that above all is really clear for industry and for investors, as well, about, you know, basically red lines. And also, to gather more information about some of these investments because I would say the U.S. Government really doesn't

have the information that it really should have, I think, on the full landscape of those kinds of investments.

MR. MESEROLE: Thanks. Just to clarify on that, I mean, it sounds like, you know, would there be in tandem with any kind of movement to -- or even potentially before there's more movement on outbound investments, kind of measures to try and get more information about the nature of investment flows so that there's greater transparency in there? If I'm understanding you right, is that kind of what you have in mind?

MR. CHHABRA: So, you know, I think, you know, you know, Chris, that in the course of working with Congress on the CHIPS bill there was a legislative proposal as part of that package. It ultimately didn't make in the package. But the focus in that legislative proposal was on really a notification regime with respect to certain sectors.

I think our view is that notification as I noted really is critical so we can collect more information about the investment landscape there and what impact the investments are having. But we also believe we need to do something with that information, as well. And, you know, I think in an area, you know, like microelectronics, right, where we have a fairly clear strategy where, you know, we have drawn some clear lines on export controls, where we have clear lines now on guardrails coming out of the CHIPS legislation, as well. You know, I think the nature of our concerns there is going to be pretty straightforward.

And, you know, just to be very, you know, frank, I think in our interactions with industry, often the reaction is we would just prefer to have red lines. Tell us what's out of bounds and then let us do our thing otherwise, right? And I think that makes a lot of sense, you know, in many ways. I think there's a concern sometimes that, you know, a lengthy review process can become a de facto ban, especially at the pace at which these deals tend to move in many cases. So, we're really taking that onboard.

MR. MESEROLE: That's great to hear. I mean, I've certainly, you know, had other conversations as well, right? That issue of red lines, I think, and providing some clarity, you know, without that clarity as you mentioned, it's effectively a de facto ban for a lot of tech development or tech

activity, certainly on the investment side. So, I suspect what you just shared will be welcome news to many if there are kind of clear red lines are able to be provided going forward.

MR. CHHABRA: If I could just make --

MR. MESEROLE: I do want to -- yeah.

MR. CHHABRA: If I could make one more comment on that. You know, I think sometimes, you know, and we're guilty of it too, but I think, you know, we can look kind of view industry with a capital I and kind of consider it as a model and a thread. And as you know, that's just not the case. I mean, when it comes to export controls, when it comes even to outbound restrictions, you know, the reactions and the interests, right, are quite variegated, right? I mean, I can tell you there are some firms that have expressed strong support for the kinds of outbound restrictions that we're considering, and similarly, on the export control front as well. And so, I think it's just important to kind of take that, you know, into account because, you know, often there's an interest in, I think, in kind of suggesting that there is one capital I industry view and that's often not the case.

MR. MESEROLE: It's a great reminder of heterogeneity of the space overall. There are some other questions. I guess just one last question on the export control side and then we can move on to some of the pillars related to talent and alliances would be just on this issue of export controls on general purpose chips. I think one of the things that recently came out was, you know, I think Nvidia had a restriction placed on it for the same of its leading server chips, or GPUs, which are kind of, for our audience, those are, you know, a class of processor that's relied on very heavily for the most advanced kind of AI development and deployment.

You know, is that kind of a precursor of other, you know, moves into further, you know, further into kind of the GPU and general-purpose technology space? Or is that something that the administration kind of views as kind of this is kind of the one off, or kind of as far as they'd like to go on that particular issue?

MR. CHHABRA: Yeah. So, look I know that the letters issued by the Commerce Department, you know, generated a fair amount of attention. I think, you know, the general principle, I

think, is that when there are letters, is informed letters issued like those, you know, they tend to be followed by, you know, a public rule or regulation, right? And I'm kind of laying out a rationale and kind of the full approach there. And, you know, we'll be in a position I think to say more about that relatively soon.

But I would say, you know, it's important to remind everyone that, you know, those restrictions really are on the very most advanced, you know, AI chips on the market, right, today. And, you know, the way that those restrictions are structured is a combination of, you know, computing power, but also interconnect speed, meaning when they are combined with a large number of other chips as well, right?

And it really gets to the point we were talking earlier about the foundational role of advanced computing. And, you know, our concerns about what some countries may be doing with some of these chips when it comes to modeling, when it comes to what can be done with, as you know very well, Chris, kind of large language models, but obviously, weapons development as well.

So, I think, you know, in general, I'd say it's consistent with our overall approach about kind of maintaining technology leadership and really understanding the national security import of advanced computing for national security.

MR. MESEROLE: Great. Now, I think it would be good to pivot here. I want to make sure we have time to also kind of track on things like talent development and again, kind of also on alliances. On the pillar related to talent, you mentioned a bit about this earlier just in terms of some of the funding in the CHIPS Act for workforce. You know, how is the administration thinking about ensuring, you know, American competitiveness in terms of retaining and attracting top talent?

You know, clearly there's kind of a renewed emphasis on funding, you know, providing greater funding for workforce development. But, you know, there's also a wide, you know, a wide array of things that could be done around kind of visas, for example, to be able to recruit more talent. And is this something the administration is also kind of actively thinking about or exploring?

MR. CHHABRA: Yeah, absolutely. Well, so we've already taken a number of steps in

that area --

MR. MESEROLE: Yeah.

MR. CHHABRA: -- kind of using the authorities that we do have. So, to give you a couple of examples, you know, there's a visa focused on research, and I think traditionally that visa has been used by academic institutions. But, you know, we know that many private sector entities have very large research outfits and should be taking advantage I think of that visa category as well. And so, we've kind of we've tried to make that clear in our public guidance but also, through our engagement with industry as well.

There's also, for example, the extraordinary ability visa. And I think kind of we've clarified through a number of channels including through, you know, fields that we think are critical for national security, what the eligibility should be for those and that it should be made more widely available, as well.

But I think ultimately, you know, in order to make good on not just the strategy, but also the investments, right, that Congress has chosen to make with the administration's strong support, we do need to work with Congress on broader reform to enable the STEM talent that we need to come to the United States and stay in the United States. Particularly when folks are here already being trained in the United States.

And, you know, as you know, there's been some great research showing that retention rates in critical fields, particularly at the Ph.D. level are very high. So, we want to make sure we maintain those. But we also need to do it at the bachelor's level. We need to do it at the master's level, as well. And again, you know, I think the national security advisor explained a couple weeks ago was that is a national security issue, and it's a supply chain issue and we need to see it that way, as well.

MR. MESEROLE: Yeah, I certainly welcome, you know, I think I'm certainly not alone in welcoming, you know, greater pushes to include, you know, greater visa opportunities for those who come here at the undergrad and master's level. And I think that being able to take the talent that's already coming here and inject them into our workforce will be, you know, vital especially if you think about kind of all of the, you know, the percentage of founders of some of many of our best kind of tech

companies in terms just the number of, or percentage of them that are foreign born, or kind of have, you know, have immigrated to the United States with their families is really extraordinary. And I think we'll need to do everything we can, obviously, to recruit more, the best and brightest from around the world to start the next generation of comers.

MR. CHHABRA: I couldn't agree more. And, you know, the other point to make is that I think this is really a critical time for doing it, right, and not just because of the, you know, the government initiatives in this space and the basic, you know, technology and economic need to do so. But geopolitically what's happening in the world, I mean, we know that, you know, unfortunately in many countries, you know, leading talent is coming under more and more pressure, right? I mean, Russia is a good example of that, right? And on the other hand, we also know that our friends and allies are vigorously competing for the world's best talent too. You can go to, you know, Silicon Valley and see billboards sponsored by other countries saying having visa troubles? You know, come to our country.

And so, you know, America just has to compete. And from our perspective this is our advantage to lead. It's long been America's superpower and we simply just have to maintain that advantage.

MR. MESEROLE: I couldn't agree more. And, you know, I think, you mentioned kind of we have to complete globally, including potentially with our allies, which is kind of where I'd to go next in terms of, you know, as you've been talking about trying to put together a tech policy strategy. Which, obviously, you know, as you laid out for many of these technologies it's about kind of isolating key nodal technologies that can't be easily substituted or kind of easily recreated by Chinese firms. Which requires on our end kind of, you know, alliance building and alliance management and kind of the development of coalitions among countries that are producing many of the leading technologies.

You know, I'd be curious if you could share a little bit of insight in terms of how you're thinking about kind of prioritizing among different allies. You know, before the administration started, for example, there was a lot of discussion about like a Democracy 10 or T12. You know, there's a lot of different proposals about how to go about this. I think one of the things that's been clear over the last

year or so is that the administration I think has kind of settled on a more kind of targeted approach where there's things like the Quad and the working group on emerging tech. There's the TTC with Europe. Is that kind of a deliberate strategy on behalf of the administration to work with our allies in a more targeted way on specific issues?

MR. CHHABRA: Yeah, absolutely, it is, Chris. Yeah, you know, and I appreciate that question and, you know, this is something we certainly discussed at length and chose to kind of focus precisely as you suggested. And I think that's for a number of reasons. I mean, the first is that the, you know, I think the kind of policy imperatives run in both directions. In the sense that, yes, we absolutely do have technology-related policy goals and that to some degree is going to dictate for any given objective, which countries are really critical for engagement.

But on the other hand, we also have kind of priority geopolitical engagements, priority, you know, alliance activities, in some cases, you know, at the head of state level, for example, the Quad, or in other cases at the ministerial level, as well. So, and there, you know, I think we can seize on the enthusiasm, the energy behind collaboration on technology to reinforce those alliances and partnerships, as well. And so, you see us kind of doing both.

I think the second issue I think is that, you know, when you are trying to negotiate over whether it's export controls or investment screening and implicating, you know, in many cases, you know, the most profitable firms, right, involved in, you know, the economies of particular countries, those are high stake, sensitive negotiations. And, you know, from our perspective, you know, doing that in a way that is appropriate that respects, you know, confidentiality and just managing, you know, those kinds of discussions in a format with large numbers of countries can be really, really challenging.

And so, you know, we've tried to kind of take the same approach that we have with prioritizing particular technologies, which is in any given sector it's often a handful of countries, really, that move most of the business, right? And so, that's kind of how we try to prioritize the strategy.

Now, that being said, in some cases it really makes sense to network these things, right? And so, a good example of where that, I think, is beginning to happen is in the technical standards space.

Where, you know, we started last year with a working group within the Asian Quad countries focused on standards cooperation. At the same time, in some bilateral relationships in our discussions with the EU, we also fostered some standards cooperation, as well.

And I think what's happened there is you're finding, you know, organically, and now formalized in some ways through the leadership of NIST at Commerce, you know, international standards cooperation that is kind of looking at alerts in some cases, on priority sectors that's focused on elections in some sectors of certain bodies. And the more affirmative strategy as well in certain areas, as well. And so, I think that kind of evolution is certainly something that we may see beyond the standards realm.

MR. MESEROLE: Thanks. I know we've actually been getting a lot of questions about standards. So, I'm glad you touched on that and the kind of new leadership with the ITU.

But I think we're getting a lot of questions in, and I'll turn to them in a minute. But one last question I wanted to ask you related to alliances is just, you know, I think there has, you know, been some concerns with respect to kind of South Korea, for example, in terms of the kind of move into greater restrictions on more general-purpose technologies. And, you know, I guess I'd be curious for your thoughts on kind of balancing the need to be aggressive on protecting American -- or kind of, you know, the advantages of the U.S. and our democratic partners when it comes to some of these really high-end chips with also the kind of economic interests and concerns of some of our allies and partners. And, you know, if there's been, you know, some, you know, considerations or thoughts about that within the administration in terms of how to weigh those balances among some allies who may be dependent on kind of some of these technologies for economic growth.

MR. CHHABRA: Yeah, absolutely. And it's, you know, I spent a lot of time in extensive consultations with allies for precisely that reason. I had a call at 6:30 this morning on this very subject with a key ally.

And so, look, I think overall I think the guiding principle for us is as much as we have to kind of invoke in some cases as kind of strengthen protective measures when it comes to countries of concern, including China, whether that's on the export control front or on the data security front, or

investments, we would like to lower barriers and make it easier for us to cooperate with our key allies and partners as well.

And to open up new markets, right? Where it may be more challenging, right, not necessarily through any doing of our own, but just by naturally where Beijing is taking their own economy, right, and their own technological direction. I think it's imperative on us to kind of open up new market opportunities as well. And that's in part why, you know, we spent a lot of time and energy and will on technology issues with India, for example.

So, I think, you know, that's kind of a guiding principle generally. But look, when you get down to brass tacks on each of these measures, it becomes necessarily a complicated calculus. You know, when you look at licensing policy on certain export controls, right, do we think about how we address multinational companies versus, you know, PRC headquarter companies as well. And that's something we absolutely kind of have to address in really close consultations with our allies.

The president has been, you know, very clear about his commitment to America's alliances and partnerships overall and expects that of us in every aspect of our policy. And so, we're doing that. And, you know, in some ways, you know, given the centrality of the kinds of strategic technologies that we're talking about now, I think kind of the analogy is, you know, we had these kinds of deep discussions, debates, right, with key allies decades ago. At that point, it might have been, you know, more focused on, you know, throw weights or missile technology policy. Now, we have to still do some of that, but we also have to talk about export control policy, right, on foundational technologies as well. And that's just kind of part of our part and parcel of our overall approach to alliances and partnerships.

MR. MESEROLE: I think I'd like to build on that in a sense of just talking about some of the foreign policy implications that go beyond China, and so, the broader kind of East Asia region. This is I think about half of the -- I've been scanning the questions as they've been coming in and I think about half of them have to with Taiwan and kind of how the administration's policies related to technology impact the kind of strategic concerns about the U.S.-Taiwan relationship and the kind of concern about

China's approach to Taiwan.

If you're able to kind of offer any comment on how, you know, how the administration kind of weighs the balance of interests in terms of, you know, our focus on tech policy and containing China with, you know, I know there's been a lot of activity around Taiwan. And, you know, I guess I'd try and conflate all the questions by asking, you know, to what extent is the kind of tech piece of this also informing the administration's thinking on Taiwan?

MR. CHHABRA: Yeah. Look, I mean, the president speaks -- has spoken very directly to our Taiwan policies, obviously. I'm going to let him do that. But I would just say, generally, right, you know, in terms of, you know, I think technology cooperation, right, with Taiwan has obviously been longstanding and critical. You know, everyone knows that Taiwan is central in our global supply chains when it comes to semiconductors in particular, but not only semiconductors, right, in other technologies as well.

And, you know, from our perspective, it's going to remain that way. I mean, you know, we are obviously focused on building more semiconductor manufacturing capacity in the United States. Our friends in the EU are doing the same. India's, you know, recently launched a program of its own. Japan as well. And so, we're going to see more manufacturing happening globally and we want to see more of that. We'd welcome that particularly for key allies and partners, as well.

But even as that happens, Taiwan is going to remain central, right, when it comes to the semiconductor supply chain. And therefore, kind of the broader global economy as well. And so, you know, that is a reality and something that we are obviously going to continued to be focused on and work with our friends in Taiwan on.

MR. MESEROLE: Thanks. I know you have to drop off soon. But another kind of consistent question we've actually gotten, I'm assuming we've got a lot of students in the audience, and kind of other kind of analysts. It's actually about USG funding for greater support for more analytic capacity within USG in understanding China. Is that something that the administration is kind of thinking about and considering in terms of just, you know, increasing the resources and funding available for us to,

you know, with across our society but in particular to try and bring in more experts or develop greater expertise on China within the government?

MR. CHHABRA: Yes, we're hiring. You know, look, I a think this is a subject near and dear to my heart. It's something I got to work on a little bit before I came into government. Which is obviously, you know, both in terms of general expertise on China, but also on all the technology issues that we've been talking about, we need more expertise inside the U.S. Government. That is the case when it comes to the intelligence community. But it's also the case on the open-source side as well. Which may not necessarily be owned by the intelligence community as much as they are trying to bring in more open-source work.

So, something we've actually been working on, you know, we call global competitiveness analysis is trying to, you know, support our departments and agencies that are trying to build out more not only the analytic capability, but access to open-source data that can kind of provide the kinds of insights that we need to inform the policy discussions that we've been having to date. And then in turn to kind of network those capabilities and coordinate them. So, that's kind of the initiatives that the administration's actively working on right now.

MR. MESEROLE: Well, that's great. And I think it's certainly cause for hope and celebration that we would kind of, you know, be able to have even greater understanding of China. Obviously, that's going to be foundational to having good policy in the long run. So, thank you for sharing that.

And even more, thank you for, you know, joining us this morning and taking part in this conversation. There's been a lot of interest and discussion around U.S.-China policy, especially as it pertains to tech over the last months and years, and it's just been -- we're deeply honored that you would take the time to join us and help begin to flesh out what the administration strategy is on these topics.

MR. CHHABRA: Thank you, Chris. Privilege is mine. I really appreciate the time this morning.

MR. MESEROLE: Great. Thank you so much. And with that, I'd like to again say

goodbye to Tarun, and also, welcome two of my own colleagues here at Brookings. Melanie Sisson, who is a fellow in Foreign Policy, and Sarah Kreps, who is a professor of government at Cornell, as well as a nonresident senior fellow here at Brookings.

And, you know, hopefully we can kind of I think just digest a bit the conversation with Tarun just now. And I guess I'll start, you know, this discussion with just kind of a, you know, for lack of much eloquence on this, just your high-level takes on what Tarun shared and anything that kind of jumped out to you. I know you both have working on a wide range of tech policy considerations, especially as it intersects with geopolitics and with China. So, I'll turn it over to you just for kind of, again, kind of high-level takeaways. Melanie, I'll start with you.

MS. SISSON: Great, thanks, Chris. And it's really a treat to join and thanks for covering so much ground so well with Tarun. I thought it was a really rich conversation. He provided some interesting detail as well as from some sort of broad overview, strategic level comments.

And I actually want to react to that a little bit and sort of think through what I sort of take away from that as the framework behind, you know, they've got the four pillars. But there's sort of an underlying sort of set of bones behind that come out to me. And so, maybe I'll just say a few things about that.

Generally, I think when we talk about technological competitiveness or leadership, what we're really meaning is that we believe that being the initiator of technology innovation is better than being a follower even if we're a fast follower. That there's, you know, like a first mover advantage that becomes realized in economic performance and enhanced national security. But of course, governments can't directly control technological competitiveness or leadership. And that's because innovation, the things that generate those advances really can't be predicted. We don't know where it will happen or when it will happen. And that doesn't that governments can't do anything. It's not a reason for inaction. But I think it should focus on lines that, of course, are policies on what it is that governments can do effectively and how to design those policies really to achieve what they can do.

And I think that comes through in the four pillars a bit, which is that if we consider the

likelihood of a technological innovation as being the product of what capability, opportunity, and intent is sort of how they land in my mind, then we can define the role of government as creating enabling conditions or supporting each of those elements.

And then you can define policies that support and encourage people in becoming technologically capable that equip them with the education and training that they need to develop their talents. We can make policies that create the opportunity to use those capabilities by expanding the number and location of research centers or businesses where those people might exercise the talents that they have. And then we can make policies that incentivize those capable people to join the organizations and usually we call those incentives salaries. But there are other incentives too like curiosity or entrepreneurialism and often mission.

So, when I look at what the administration is doing and hear Tarun's and National Security Advisor Sullivan's explanation about what they're doing with chips and these other mechanisms like the Infrastructure Investment and Jobs Act, the executive orders Tarun mentioned, I think it's generally doing well on all three of those elements. It is investing in people in education not just at the PhD level, although that figures prominently.

As you discussed, it's working to address some immigration concerns. There is investment in S&T research laboratories. So, it's expanding the places that those people might go to apply their talents. And it's incentivizing those research labs very specifically to undertake activity in what the administration has defined as priority areas, computing, biotech, and clean energy, for example. And then giving them funds to pay for the talent to work on them.

I think as you very aptly brought up with Tarun, I do have some qualms about the administration's approach to technological leadership in the foreign policy domain. The administration is really leaning into language about being back, and working with allies and partners, contrasting democracy and autocracy. And at the same time, is undertaking policies that look to some like economic nationalism, if not just straight protectionism.

So, the approach to securing supply chains, onshoring, constraints on where

multinational companies can locate their multinational business operations, and so forth. The efforts at creating supply chain industry alliances that I think you also noted have been as difficult and as complicated as they are, I think that the external view is at least is that they seem to have been a bit incentive to the dynamics of these other states' political economies.

So, the Chips 4 Industrial alliance proposed to South Korea, Japan, and Taiwan really puts those partners in an uncomfortable position given that China is an enormous electronics goods market for all of them and given that some of them also have their own bilateral histories and in some cases tensions.

So, however committed our partners are to democracy and to the world order and trade and investment with the United States, they also have governments that rightly focus first and foremost on promoting the security and health and wealth of their own populations. Which means for the United States, I think, that we need to take real care not to create on side, off side choice sets that present them with problematic tradeoffs unless there is a really, really compelling reason to do so.

I'll stop there because I'm very much interested to hear what Sarah's take is.

MR. MESEROLE: As am I. So, there's a ton I'd love to kind of dig in with you, Melanie, but I'm going to turn it over to Sarah because I suspect she may share some of your concerns. But I'd love to hear from you, Sarah.

MS. KREPS: Thanks, Chris and Melanie. And it's great to be here. I would first say that as a taxpayer, it's very gratifying to know that Tarun is responsible for our country's tech policy because he's so bright and he is so sharp and has exactly the right background for this position. So, that was really gratifying to hear his remarks. And, you know, like Melanie, I heard things that I thought were encouraging and I had some areas where I was a little bit wanting to kind of hear a bit more or sort of maybe a different angle on.

So, I think first and foremost, what he really was doing was amplifying these four pillars. The science and technology ecosystem, the STEM talent, protecting tech innovation, and deepening alliances and partnerships. And we can go to the WhiteHouse.gov site and find that. But I think what's

useful about his remarks on that is you can really kind of get a sense and an inference about where the administration sort of is looking to prioritize on that.

And one of the things I heard most, which I think we share and is communicated in our recent policy report is the importance of talent, and particularly STEM talent. So, if we're looking to reshore or onshore more of the manufacturing of semiconductor chips, we need the talent to do that. And we know that that has been in scare supply. We know we have low levels of unemployment, which is good in some senses, but it means that there can be a deficit when we're trying to kind of beef that up.

So, I heard that they recognize that concern. I think there's also an interesting way, in a sophisticated way, I would say as someone who teaches international relations and technology, that they really understand the issue linkages between these. And some of the potential externalities between kind of the protecting the U.S. of damages in tech and the need that sort of point forward the deepening alliances and partnerships.

What I wanted to hear more though is kind of a better agility in that regard. So, I think there are two areas where the -- and this isn't easy to do. As he said, this is very complex. But where I would highlight a need for kind of some policy agility would be one on where some of the emphasis let's say on the protecting U.S. advantages is having kind of negative externalities on that fourth area of the alliances and partnerships.

And I think especially when you put this CHIPS Plus Act together with the Inflation Reduction Act, both of those in a way are putting pressure on our allies. And this came up recently with South Korea and the inflation reduction kind of climate protection that gives tax credits for electric vehicles manufactured in the U.S. only. And so, South Korea, which makes Hyundai and Kia electric vehicles, are then kind of disadvantaged by that. And I think that's something I was in a -- I gave a presentation to the Korean Ministry of Finance and they're very worried about the way in which their own domestic labor markets are affected by these, you know, these initiatives in the U.S. to protect U.S. advantages. And I think there needs to be greater cognizance of those negative externalities of the pressures that sort of the protecting U.S. advantages is having on our allies that we need not just kind of

in this space, but more broadly from a geopolitical perspective.

One thing that I haven't heard or didn't hear him talk about that I think is really important is in the intervening months between when this CHIPS Plus Act was passed and today, is the semiconductor industry has really taken a beating. And so, what may have looked -- and this sort of dovetails with Melanie's concerns about the way in which that this protectionist policies may be adversely affecting our own industry, is that there are ways in which there might be market inefficiencies of some these incentives in the CHIPS Plus Act, which may have felt like those were prices worth paying a few months ago when the economy was thriving and when the semiconductor industry still looked like it was struggling to keep up with demand. But demand has really plummeted as the global economy looks like it's entering a recession. And so, I would think we'd want greater agility in responding to these underlying economic conditions, which may or may not now make it suitable to have these same kinds of protectionist policies that I think we see in some of the big legislative pieces we've seen recently passed.

MR. MESEROLE: Thanks for pointing that out. That was one of the points I was hoping to get to in speaking with Tarun. But, you know, I think a lot of the activity in this space and the kind of strategy for it was developed, you know, really at a time when there was a shortage of chips, right? Like for most of the last, you know, certainly, from the beginning of the pandemic there was like the narrative around chips was just that there were not enough of them. You know, we couldn't even manufacture cars because there weren't enough chips to put in the cars, right?

And, you know, I think now we're in a position where there is I think greater market capacity for that but it's, you know, and what kind of incentives we need to kind of -- what kind of incentives do American firms need to begin to kind of correct or provide greater resilience within our kind of semiconductor capacity are a little bit different than it was, you know, two years ago. And so, hopefully, they'll kind of take that into account going forward.

You know, Melanie, I want to kind of come back to you. You know, I think you did a good job of laying out some of the, you know, concerns around alliances and kind of maintaining alliances with respect to, you know, the administration's policies on chips and semiconductors. There's also, you know,

maintaining alliances with respect to Taiwan, which obviously, is the center of semi-conductor manufacturing, but is also a very geopolitically and geostrategically important area as well. And I know you've been doing some thinking around, you know, U.S. policy towards Taiwan lately. And I'd be curious for your take on -- I know Tarun touched on that very briefly at the end, but if you have any thoughts on how what he shared kind of inflects that conversation.

MS. SISSON: Yeah, he did. And I actually noted down and I had a question about the causal arrow about which direction our tech -- how our tech policy affects our Taiwan policy or is it that our Taiwan policy affects our tech policy. Which way does that arrow go exactly.

MR. MESEROLE: I wish you'd shared that before. I probably would have been more explicit about it. It's a great way of framing it.

MS. SISSON: Well, so, we'll do our best now. How about that? So, you know, I think there is -- it's the elephant in the room. Everybody is very attuned to the dynamics around Taiwan and particularly the question of the extent to which the United States is involved in any cross-trade contingency and under what circumstances. And I think there is at least a correlation between that conversation and growing concern about China's intentions toward the island and the U.S. position, and recognition of Taiwan's really central role in the semiconductor market.

And so, you know, I certainly wouldn't say, wouldn't dare to sort of imply that, you know, that this policy, the CHIPS Act is a direct response to those tensions. I think it's much broader in its scope and view and intentions than that. And I think that's apparent in the very fact that, you know, there is no short-term solution to dependence on Taiwan's industry at this moment.

And, you know, $52 billion to incentive manufacturing in the United States is not going to solve anything in the near term. It's a first step. It's a broader long-term approach. And, you know, as Tarun mentioned, Sarah and you, Chris, there is good things about it and nothing is perfect, and so, there might be things that ought be different. But no matter what, the constitution of that policy is if there were a contingency over Taiwan and things got military, you know, everybody would be in a bind when it comes to semiconductors and to other elements of the global economy. And at that point, everybody's

concerns would extend well beyond whether or not we could be making cars and having new phones and all the like. And not to trivialize their importance, but if something like that happened, I don't think semiconductors would be top of mind.

So, you know, I think that we'll have to continue to watch the space. I think the Taiwan question is only one part of the larger technological competition with China, which is why I was heartened to see the 200 billion in the CHIPS Act go towards sort of those other elements as Sarah, I think, rightly emphasized in particular, talent development.

MR. MESEROLE: Yeah, and I was also heartened to see that. And I would also flag for our viewers, since I just got notice of this that a paper that Melanie, and Sarah, and I, along with our colleagues Jess Brandt and Pav Singh is now live on our website that kind of documents a little bit more the kinds of things that we can do in areas like, you know, improving our talent base within the United States. And, you know, also you know, what exactly the administration should be prioritizing when it comes to things like investment and standards development.

On that, Sarah, I want to kind of come back to you. You know, if you were thinking of, you know, most of the conversation I think with Tarun was focused on the here and now or kind of the, you know, the recent past in terms of tech policy. Where would you just kind of instinctively, you know, I think we got a bit of this from some of your earlier comments, but where would you like to see the administration go on some of these issues? You know, like thinking about the reality of, you know, just for broad strategic reasons independent of technology, the U.S. and China are going to be, you know, it seems like we're in a stage of, you know, certainly not, hopefully not conflict, but certainly, you know, heightened competition and confrontation in some ways.

You know, how would you like to see them move forward in the coming years when it comes to tech policy and kind of our relationships with our allies, for example, in developing that? Or, you know, again, even some of the things that we touched on already with respect to immigration? It's kind of an open-ended question, I guess, but I'd be curious for your thoughts on, you know, how given where we've been and how we've arrived at this point, where, you know, what's the best course forward in your

view?

MS. KREPS: Yeah, thanks, Chris. So, it is complicated, and I wouldn't suggest that U.S. interests should be second or middle of the pack. I think it's right for the administration who's representing U.S. interests to think about protecting U.S. advantages. But what I would worry a little bit about is backing away from some of the policies over the last couple of decades that I think have served American interests well. Which is some of these trade and multilateral policies that emphasize kind of comparative advantage, frankly, and market efficiencies. And I understand that there are dislocations from and of that.

But where I would sort of try to kind of move back into this direction of the whole being greater than the sub of its parts. And I hear that from the administration. I hear about the Quad, and I hear about some of these kind of tech alliances. But I think that needs more heft and more weight and maybe less of this kind of American first rhetoric that I think that there's not as much of recognition in the way in which strength of our allies can also be strength -- and strength in our allies, I don't mean just kind of from a national security perspective, but from this economic linkage perspective. Which is that strength in the South Korean economy, strength in the Taiwanese economy has an impact in bolstering their own economies, which help us as well.

So, I think greater recognition of those linkages would be helpful. Again, kind of engaging with where we've seen kind of the global economy go, which is I think there's a way in which kind of thinking only about certain sectors of the U.S., this America first kind of approach can actually have long-term disadvantages for the U.S. economy but also for our partners. And so, I think that can create then these disadvantages, again, not just economically, but in that connection with our national security as well.

MR. MESEROLE: It's a great way of putting it. I mean, I think the challenge is, you know, we've obviously got, you know, significant kind of national interests, but, you know, it's very hard to see how a purely kind of, you know, America first strategy I think arrives at the kinds of alliances that we would need. We don't have a monopoly over these technologies, right? Certainly not the supply chains

of them or even the development of them. And we'll need to recruit, you know, willing allies and partners in this. And, you know, the more the rhetoric around this is about kind of positioning America first, I think the harder lifter will be in the long run to maintain that kind of posture.

I want to turn to some of the audience questions. We actually got like as far as events go, this is probably the best sample of questions that we've ever gotten, in my view. So, our audience, those of you with us, just thank you for all the great questions.

You know, I think one of the questions, you know, some of -- we've already talked about this a bit. But it's a question about effectively decoupling, which we kind of danced around in the conversation with Tarun. I don't think I mentioned the word specifically. Certainly, you know, everything we talked about I think had implications for decoupling. But the question is basically, you know, how will -- I think if I can paraphrase it, it's that basically the status quo is unsustainable but also fully decoupling is probably not the right way to go either.

And so, I'd be curious for both of your takes a little bit on -- and again, we've kind of touched on this in different ways already, but just what decoupling should look like in terms of supply chains in particular. There's another question that we got in that kind of pointed out even if you reshored manufacturing to the United States, there's still like a 1,000 different suppliers that would need to give you the materials you needed, et cetera. And many of those are from abroad, right? And so, kind of figuring out even just the logistics of how the full decoupling would work it would be a bit of a nightmare. But, you know, shy of that, you know, where would you like to see the balance, you know, between a world where the kind of status quo is maintained versus a world where we really start to kind of radically decouple U.S. and Chinese supply chains? And I'll start with you, Melanie.

MS. SISSON: Sure, thanks. That's a big question, Chris.

MR. MESEROLE: It's a big question. All right.

MS. SISSON: And so, --

MR. MESEROLE: If you could do it in like a minute that would be great.

MS. SISSON: That's great. Well, inside I was like maybe he'll go to Sarah first and then

I can build off of what she says, but I'll do my best instead.

Well, so, look, I think, Sarah, you might have mentioned this earlier, but life is full of tradeoffs. And, you know, when we talk about decoupling, what we're essentially talking about is undoing some of the number of benefits, and there are many, of globalization because we are uncomfortable with continuing to live in a world of complex interdependence where we do rely very much on these connections with the entirety of the global economy.

So, you know, if we really think there's such an enormous risk in continuing to interact with China and other countries in this way that we want to get serious about true decoupling, the American people will pay that cost literally from the pocketbooks. Goods will become more expensive, markets will be less available, and it will be painful.

Now, that's something that only for very compelling security reasons and I don't see those reasons today. And so, my view, Chris, is sort of to say, you know, if the United States is going to continue to exercise a leadership role in the world, the first thing we should do is not panic. You know, things are changing but that doesn't mean we need to overreact. We should think and this administration is a very thoughtful, smart bunch of people. So, you know, I know that they are doing this activity. But be very careful in terms of assessing where there is real risk and where we can feasibly do something about it.

As you just said, these technologies and the nature of their advances are going to get more diffuse not less. And so, there's just a real limit to what it is that we can do through policy to constrain that anyway. And so, to really move in the economic arena in ways that would cause some considerable pain and dislocation seems to me unwise.

MR. MESEROLE: That was a great framing. And I'm kind of amazed you were able to do that in like 90 seconds. That was really well done. Sarah, do you have anything you would add on that?

MS. KREPS: Yeah, no, I mean, it's interesting because I think a couple years ago, I was hearing a lot more about decoupling. And I think that word has kind of lost some of its currency. And in

part because I think there's a recognition that especially in this space, it's virtually impossible because of all these interlinkages. You know, the semiconductor manufacturing process I've heard something like 500 steps. So, even if we reshore as one of the audience questions noted, even if we're reshoring some of that, we still have so many other parts of that that are coming from Europe, coming from other parts of Asia. So, I think there's an impracticality of actually onshoring the whole process. And I don't think anyone's pointing to that or is sort of suggesting that we do that at all.

One of the things though I think is further evidence of the fact that the administration as Melanie said is full of smart people that recognize the impracticality of this is the interesting paradox in a way that the export list keeps growing -- sorry -- the restriction list keeps growing, except so does the number, the percentage of approvals of exemptions to this list. So, you know, I think this is buried in all of the rhetoric but that the U.S. firms can apply to the Commerce Department for exemptions. And something like 94 percent of these requests are approved.

And what that suggests is that there is kind of a barrier to entry in terms of whether these items can be exported to China. But most of the -- the overwhelming majority of them are granted licenses. And I think, again, there is this kind of way in which, you know, if this export list were actually fully complied with, it would actually be shooting ourselves and our industry in the foot. And so, they're trying to erect some of these barriers. But then in the end, you know, 94 percent are approved.

And so, I think that sort of keeps in mind the tension in these tradeoffs between sort of this U.S. advantages but also the recognition that without this supply chain operating as intended, our own industries will be kneecapped as well. And so, again, I guess I would just return to this point of agility that these conditions are changing all the time and we can't sort of stay with a static, you know, CHIPS Plus Act as it was legislated, but try to adapt as much as possible to these changing global and geostrategic conditions.

MR. MESEROLE: That's a great way of framing it. One last question that we got but I was hoping to have time to ask Tarun but I did not, was a question from Martin Wagner, a student at Oxford, related to antitrust. And just kind of the sense of how should the U.S. -- it's a bit of, I guess, kind

of adjacent concern to some of the things we've been talking about already. But there's this, I think the sense of America's largest tech companies, you know, do we need them to be competitive and bigger than kind of China's best and biggest tech companies? And how does that relate to the restrictions that are being placed on American tech companies? Or would it be wise to kind of break up American tech companies?

This is something that I think would be it's a little bit less current now than it was maybe, you know, six months or a year ago in terms of how often I've heard this question. But I wanted to at least raise it because I know it's on a number of people's minds both in our audience and, you know, more broadly. Do you see a need for maintaining the kind of leadership of large American kind of tech companies? Or would kind of greater antitrust action there be counterproductive or kind of even just really not have much bearing potentially on the broader kind of geopolitical concerns with our competition with China? And, Sarah, I'll kick it to you and then go to Melanie for that one.

MS. KREPS: Yeah, Chris, and good question from Martin I think was the name?

MR. MESEROLE: Yes.

MS. KREPS: But I'm in the camp that thinks that that would be counterproductive. Sort of this emphasis on breaking up big tech would be not only not useful but counterproductive. I don't think it would achieve the goals that are ascribed to it. But I think in the sort of this area of competition with China would be a real disadvantage because of -- but I can see how in Europe there is this sense that -- and I know, you know, in terms of the legal side of this, you know, not a week goes by that there's not some case. I think it was Google last week that paid some big fine. Was it Google?

MR. MESEROLE: Yeah.

MS. KREPS: Yeah, on this front. But I think from a U.S. perspective, these firms have been until recently a big part of our economic engine. And I see a real disadvantage to trying to try to undermine that. And again, I think what will happen is that these companies would just find other ways to do what they were doing. So, I don't think it would have the intended effect. And it think conversely, it would just kind of create a real kind of economic disservice. Which again, has these adverse -- spillover

effects from a national security perspective given the strength that those companies have had in our economy.

MR. MESEROLE: Yeah, I think there may be a lot of wisdom in that approach. Melanie, do you have any kind of parting thoughts on that or other issues that we've discussed?

MS. SISSON: Well, I'll just say I appreciate the question, not least because it reminds me I have a good friend who is an antitrust lawyer, and it's been too long since she and I have spoken, clearly.

But I will say that my reflex is to actually want to dig in a little bit and, Sarah, I certainly think those -- I fall very much in line with what Sarah raised. And it's because for me it's not clear what the intent necessarily of that would be and what the sort of, you know, prediction of the outcome to be achieved from that kind of action would be. But I do would worry about not necessarily so much the competitiveness with China, but much more sort of the signal government action like that would send to other companies domestically and whether that would have sort of an undermining effect, I think, as you said, Sarah. So, that's what I've got. Until I talk to my friend again, that's what I've got.

MR. MESEROLE: Very well. Let us know once you've had a chance to speak with her. But in the meantime, thank you both so much again for joining this conversation. To our audience at home, thank you as well for joining.

Please do take a look at the report that Melanie, and Sarah, and I coauthored and that just came out today on exactly these issues. If your curious about this issue, you will find a lot more great insights there. And again, thank you to our staff who helped host this event as well. So, thank you all and hope you have a wonderful day.

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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.

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