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WEBINAR

DEFENSE SPENDING IN THE STATES

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Panel 1: Broad Defense Spending Trends and Impact On Innovation:

MICHAEL O'HANLON, Moderator
Senior Fellow and Co-Director
Center for Security, Strategy, and Technology
The Brookings Institution

MACKENZIE EAGLEN
Fellow
American Enterprise Institute

ELIZABETH CHIMIENTI
Program Activity Lead, Diversification and
Realignment
Office of Local Defense Community Cooperation
U.S. Department of Defense

JOHN G. FERRARI
Nonresident Senior Fellow
American Enterprise Institute

Panel 2: DOD Supply Chain Priorities and The Importance Of Manufacturing:

MICHAEL O'HANLON, Moderator
Senior Fellow and Co-Director
Center for Security, Strategy, and Technology
The Brookings Institution

ELIZABETH REYNOLDS
Special Assistant to the President
for Manufacturing and Economic Development
National Economic Council

DEBORAH ROSENBLUM
Performing the Duties of the Assistant
Secretary of Defense
Industrial Base Policy
U.S. Department of Defense

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

P R O C E E D I N G S

MR. O'HANLON: Greetings everyone and thank you for joining us today at Brookings. My name is Michael O'Hanlon with the Foreign Policy program and the Strobe Talbott Center at Brookings. But I'm joined by an illustrious group from other organizations today who will help us understand the role of defense spending in our Nation's economic.

And also, some of the areas of where there could be vulnerabilities, shortfalls, problems with the industrial base, areas of potential vulnerability as we are all again reminded of the importance of global supply chains in the context of the Russia/Ukraine crisis. But more generally in the evolution of the American economy at large over the last few decades and have to think hard about when and where we may need to shore up the strength of the industrial base along the way.

So we have a two panel discussion for you today. And this being Zoom, we're going to move fast recognizing that most people don't like to be on Zoom calls for longer than our 75 minutes allotted. And we'll begin with two outstanding scholars and practitioners, Retired General, John Ferrari at the American Enterprise Institute.

And Elizabeth Chimienti from the Office of Local Defense Communities in the Department of Defense where she has spent a decade working on a number of initiatives there including the annual report that she'll be discussing today that breaks down when and where the broader U.S. Defense Department spends its dollars by state and locality which is not just an interest and importance but is also really relevant to how we plan.

I think it's an important reference for those who might be local economists or planners or business, you know, entrepreneurs and wondering what kind of assets? What kind of talent pool? What kinds of resources maybe present in a given region of the country already where there could be opportunities to build on existing strengths, pockets of

excellence or otherwise just factor in the Defense Department's role in the local economy as we think more generally about national economic development?

But John Ferrari who has served in Iraq and Afghanistan. He's a West Point grad. He's also a very well-trained business and economics expert in his own right and he's degrees along the way. And his military were from places like the Wharton School. As Elizabeth's were from Cornell and MIT. There's a lot of expertise in both their heads about how to think of the role of the Defense Department in local economics. So we're going to begin with a discussion with them for about half the time, and then bring in a second panel.

And I'm going to begin with a question for John Ferrari, who also by the way works at a company called Complex, but is a Nonresident Fellow at the American Enterprise Institute next store to us at Brookings. And, John, if I might? General Ferrari, as well for acknowledging your remarkable career and where I was privileged to see you in action overseas a few times.

I'd like to just ask for your take on where we stand in, you know, defense's role in the economy today? As we know the size of the budget is sort of eyepopping, \$8 billion a year. And yet, it's a modest fraction of our overall economy compared to most times in your or my lives when we know in the Cold War, typically defense was five to 10 percent EDP. Today, it's down a little over three percent across domestic product.

And it is certainly important for driving certain parts of our economic engine, but it's not the main driver of, you know, broader technological innovation the way that it arguably was during much of the Cold War. So just how would you help us understand the role of defense in the American economy today? I know that's a very big, broad question, but I just invite you to go where you like with it.

And then we'll go over to Elizabeth and then have a little bit of conversation

from the audience. And if people want to email questions, we'll try to get to those. The email address would be events@brookings.edu. Again, events@brookings.edu. But first, John, thanks for joining us today and over to you.

MR. FERRARI: Thank you, Mike. And thanks for having this panel. This is a great discussion. And I think I'll talk first just quickly about the broader role, but then maybe a little specifics about the current defense budget as an example and then how that relates to local economies and states and at the national level overall.

So I think you said it very well, first, that, you know, defense spending is a percent of the overall economy is small, right? It's at its lowest level relative to where it has been. It has, you know, fluctuated depending upon the worse spending anywhere from 2.6 percent to 3.1 percent, but it's been in that range. And as you said, you know, during the Reagan buildup it was closer to six, seven percent.

So it's about half the impact that it used to have. And we've had a number of base realignment and closures that have really shrunk the footprint of defense over the footprint of the nation. And so, really where you see a lot of the impact, the greatest impact, is where the bases are because the bases are where a lot of spending on personnel is. And then, you know, the secondary and tertiary spending that goes along with supporting a military base.

And then really, it's at the major locations where defense procurement is spent so tank plants, the shipyards. And then down, it trickles down to kind of the supply chain overall where defense plays a miniscule part of the overall environment. And if you look at information technology and microchips, it's just a fraction.

So one of the challenges defense has, and the processes have though, is it still thinks that it's a large player and a market maker. Where, really, it's a market taker. And one of the challenges that exists and, you know, many administrations are trying to

overcome this, is getting commercial companies to do business with the Department of Defense.

The challenge with funding in the Department of Defense is that you can get an initial contract as a commercial company, but then the cycle to get the appropriated funding in the right line in a program in a dedicated funding line can take two or three years. And if you're a small business somewhere that's very hard to cashflow that amount. And so, the system has been set up over 50, 60, 70 years to really favor those that do repetitive business.

But there are actions in the Congress and the Department to realize that really a lot of the innovation is not being done within the traditional defense industrial base. So that's kind of number one.

Now, talking about the current defense budget, right, and how it's affecting communities. So the first is that the Congress is playing a much larger role than it has in the past for a number of reasons. Number one is that we are out of sequestration-level funding so Congress can add money. And they have in this last budget cycle. But two earmarks are bad, right? Whatever you call them. And they have exercised that prerogative and are adding projects and procurement to the budget.

So last year with this administration, they submitted a budget and Congress added tens of millions of dollars to it. For 2023, the budget that went over to Congress was actually a reaction to a much larger than was anticipated. This administration really was looking to cut back on the size and the force in other areas, but they had to add money because with the war going on in Ukraine, they couldn't send over a defense budget that was smaller than that was appropriated by Congress.

What we'll see, I think, in 2024 is a larger result of cuts to defense force structure. So what we know in '23 was this was just a tip of the iceberg. The army got

smaller by 12,000 soldiers, two and a half percent. The navy is shrinking by 17 ships or 5.7 percent. And the air force is shrinking by 234 aircraft, 4.3 percent. And there's a bit of a dichotomy because it's record defense spending. Yet the force keeps getting smaller and smaller in the footprint then its impact gets smaller and smaller.

And part of that is due to inflation, which is eroding the buying power of the Department of Defense. Part of that is due to the very, very large bills due for nuclear modernization, which is being fully funded. And that's taking away money from the conventional forces. And part of that is just due to inflation. And it's no different for the Department of Defense as it is when you go to the grocery shopping and you're pay a little more for your pound of coffee. Then you get home and you realize the bag is actually 12 ounces, right? Shrink-flation. So the forces are getting smaller. There's less money to go around.

The other thing is that the Department of Defense is spending more and more money on research and development and less on procurement. And so, for firms that are, you know, providing kind of prototypes to the Department of Defense and helping them develop technologies, those funds are at record high, but procurement is not. And we see the challenges with that.

So we saw it in 2013, '14, you know, with the war in Syria. The Department of Defense ran through and expended all of its war munitions, you know, inside six months and it took three or four years to get the supply chain moving. The same thing now with Javelins and Stingers, right? The supply chain is not responsive because the Department hasn't primed it. And so, as companies are out there and looking at where they fit in to the supply chain, right, you can see the Department of Defense will be spending some more money in there.

The last thing and then I'll turn the stage over are in recruiting and

manpower because that's a very, very large chunk of the budget. So if you have a military base in your district, and you have soldiers. The army and all of the services are having a very difficult time recruiting right now.

Part of that is due to \$15 minimum wages and other options in the outside world. Part of that is the pay hasn't kept pace with inflation. And so, they're paying \$50,000 signing bonuses. The pay raises are smaller than inflation. And what it's leading to is the force is getting smaller and smaller over time. And that's going to affect locations. And while the army's bases have been more or less right sized if it's going to have to shrink more, it might do more base closures. And we know that the air force wants to do that.

The last thing is military construction. So the Congress last year added double the amount of money going to military construction. So we hear a lot about the infrastructure bill, but there's going to be a lot of construction going on on military installations. Everything from the shipyards to barracks to all sorts of the depots and arsenals. And so, we can expect that to continue for the next couple of years in that that's an area where Congress will continue to add money.

And so, that's just kind of a quick go around at the macro level and then looking at the '23 budget that's on the hill now being appropriated and it will be marked, right? So Congress is going to put its fingerprints on the budget here in the middle of June. The House authorizers will do their marks in June and July and then the appropriators will take their turn. So that's where we are pending any questions.

MR. O'HANLON: Thank you, John. I think I will follow up with you first before going to Elizabeth because I think there will be two related but slightly different strands in your overall arguments and focal points. So I want to stay with you just for a minute.

I have really two questions that are in a way the flip side of each other. One

is how can we be spending so much money and still not having enough money in the sense that you would think \$800 billion would be enough to maintain a military that's only two-thirds the size of the Cold War, you know, end state. And is there something we're doing wrong with in DOD management? Or is this just the cost of doing business for, you know, a well-equipped, highly professional force?

And then the related question would be simply what would your preferred budget be in dollar terms? If you're uneasy about these additional downward pressures and these additional cuts to end strength as well as to procurement accounts? Is there a rough number you have in mind for the budget you would like to see?

MR. FERRARI: So I think, you know, the answer to your question of, right, is the Department of Defense inefficient? And is it enough? And the answer is, yes, it's inefficient and, no, it's not enough, right? Both, right?

So part of the issue is, right, you know, we talk about inflation being at eight and a half percent, but that's just 12 months, right? If you go back to January 20, right?

Inflation is one of the most destructive forces in the world especially when it's compounded and exists for more than one year. So if you go back to January of 2021, and you pull forward 15 months, we already have had 10 percent inflation. So while the head nine -- 12-month numbers are 8.6 percent, we're already at 10 percent. And we'll probably be up to 15 or 20 percent over a two-year period by the end of the year.

So think about an \$800 billion losing 20 percent of its purchasing power that's \$160 billion, right? So how do you not have enough at a \$800 billion budget? Well, 20 percent inflation is \$160 billion. That's the same as \$640 billion. So that's number one.

Number two is on the procurement side and the RDT in the east side and the spending side. The federal government has a lot of rules that drives up cost. We see it in the infrastructure bill with construction, paying prevailing wages. We see it with \$15

minimum wages. We see it with all of the rules on companies, right? What they have to do in order to do business. So the procurement costs, it's not as simple as going to Best Buy to buy a computer, right?

So the cost of doing business with the Department of Defense is high, which means you then you get less bang for the buck that you're spending in all your investments, right? From construction to procurement to even research and development. And companies will tell you, they have to keep two sets of books. They have to have all sorts of accountability in how they do human resources. And so, all of that adds friction and time to the cost.

And then lastly, right, the cost of, right, the government is funded sometimes six months late. And there have been estimates that, you know, that it's like buying your groceries at 7-11 instead of Costco when that happens, right? You pay a premium and there have been some estimates. Nobody knows exactly that that wastes \$3 billion, right? So over the course of six months or a year, there goes another \$30 billion in lost buying power that the Department of Defense would have.

So those are three reasons why you're getting a lot less than you need.

MR. O'HANLON: Thank you. Excellent overview. And now, Elizabeth, I would like to go to you. And again, just, you know, commemorate and recommend the defense spending by states' report that you folks do, which is such a great resource. We can just Google that phrase and it will come right up. I just did it before the event.

And, you know, it's actually a fun read. For one thing, who would have thought -- and we'll play a little trivial pursuit if you want, except it's not trivia. It's pretty -- who would have thought that the number one state for defense spending now is Texas, far and away? It used to be a closer competition with California and with nearby Virginia. And Virginia and California have sort of treaded water. And Texas has shot way up. Who would

have thought that the number one state by defense spending relative to state GDP would be Virginia? And the number two would be Hawaii? I guess it sort of makes sense when you think about it.

Anyway, there are a lot of nuggets like that. So let me turn the floor to you. And ask you to just help us understand this report and how it can be a resource for people?

MS. CHIMIENTI: Absolutely. And thank you for the plug and thank you so much for organizing this event today. Before I start talking about the report, I just wanted to say that Mr. Patrick O'Brien, the Director of the Office of Local Defense Community Cooperation, regrets that he had to a scheduling conflict and wasn't able to join us for the conversation today.

But we really appreciate your interest and helping us get the word out because we have been producing this report now for eight years and it is full of these kinds of nuggets of information where you start thinking, oh, okay. That makes sense because it's a state with a small duty appeal. Or, oh, you know, I guess, wow, Texas, F35. That really, you know, that obligation made a big dent in that state's anticipated budget over a number of years to come.

So for folks who aren't familiar with the Office of Local Defense Community Cooperation. We used to be called, the Office of Economic Adjustment. And we were started in 1961. Our mission has grown substantially since then, but part of what we do is we carry out the defense economic adjustment program and that is written into an executive order.

And that program encourages public cooperation and private involvement in defense economic adjustment activities. So we have found that it is very hard to encourage that kind of cooperation when state and local leaders, for example, you know, mayors --

MR. O'HANLON: You're good now. You went away for a little bit visually,

but you're back so please continue.

MS. CHIMIENTI: Okay. Thank you. So I'm sorry about that technical issue.

MR. O'HANLON: No trouble.

MS. CHIMIENTI: I think I was getting a spam phone call.

In any case, we found it's very hard to get that kind of cooperation and engagement in defense related economic adjustment activities. In this case, supporting the defense industrial businesses. It's hard to do that when your public and private sector leaders don't have a full picture of the impact of defense spending in a local area.

And, you know, as General Ferrari said, you know when you're passing by a military installation. It has a gate. It has a fence. When you are driving past a machine tool shop on the highway, you may have no idea that 20 percent of its revenue comes from a subcontract from the Department of Defense. And so, this report is a first step in trying to help communities understand where defense spending is located. We're finding installation side as well as on the industry side.

We did release the fiscal year, 2020 report. It's blue. That's terrible. All right. It's blue, and it's at oldcc.gov. We released the report on the 50 states and the District of Columbia in October of 2021. And then we released a supplemental report that covers defense spending in five territories in February. We were hoping to release them together, but the GDP data was a bit delayed from BEA because it was 2020 so it came out a bit late. But we hope that these two reports are really useful starting points for states and communities as they dig into some of the challenges that are facing DOD.

You know, the pledging challenges including workforce shortages, innovation challenges, the reprioritization of spending from legacy systems to our advanced systems. These are all areas where DOD can't do it alone. The federal government on its

own isn't going to be able to do it alone.

We need the support from the private sector. We need states and communities to try to harness some of that through Centers of Excellence and through some really deliberate activity to understand what's going on in their economies and how they can support both the near-term challenges that are currently tripping us up in some of our supply chains. And then also, to understand what it will take to move some of these companies from legacy systems potentially to more advanced technologies.

MR. O'HANLON: That's great. So let me have a follow up question or two with you. And then I'm going to go to audience questions that have already been coming in.

One is you mentioned the F35 and that's a good example of a system where I would like to drill down a little and help make sure we all understand one key point. Because of course the F35, the main contractor, the lead contractor is Lockheed Martin based in Texas. But I have been to F35 production facilities in California that are run by a subcontractor to Lockheed.

MS. CHIMIENTI: Right.

MR. O'HANLON: And so, does your data assign the entire F35 contract for the state of Texas just because Lockheed is headquartered there? Or do you have the granularity in your information to be able to apportion for something like that into the various states where the key manufacturing occurs?

MS. CHIMIENTI: That's a great question. So it depends. If those spending is within Lockheed, but it's just been, you know, moved around to different factories around the country, but within the company. The federal government does not require the prime contractor to report all of the locations where it's producing a system. And so, it will just have one place of performance for the prime contract.

The primes are required to report subawards. So we do have information

that's in the Treasury system, U.S. Treasury runs usaspending.gov, which is a great resource for identifying the locations of both prime contracts as well as those first-tier subcontracts. Once it goes below that there's no reporting (inaudible). And so, that data is at a federal level. But that's a place where governors, mayors and, you know, industry associations, economic developers, manufacturing extension partnerships. All these folks can go out and do some legwork and do some surveys to find out who's working on what (inaudible).

MR. O'HANLON: And then one other -- thank you. That was very helpful. One other big, broad question would be just to help people paint a map of the United States. I mean, I've looked at the tables for the top 10 states by overall defense contracts with the caveat that you just mentioned that the data is not perfect.

And then also the states, the top 10 for defense spending is a percent of GDP. And the way that I process it, and I'm just going to put it out there and ask you to comment or correct me or just paint a map for others that maybe is better than mine. But when I think about where the highest concentrations of defense spending are in the United States. I think of certainly of Texas. And then the states that border the Pacific Ocean, although not Oregon so much.

But Washington state has a fair amount and California not relative to state GDP, but because of the sheer size of California and the naval bases, it's an important state. Hawaii and Alaska, a pretty small populations, relatively small GDPs, but a lot of military infrastructure.

So all the states along the Pacific have pretty high spending. Florida has pretty high defense spending. And then the northeast sort of starting from -- well, maybe with -- both the Carolinas have a moderate amount. But then certainly, Virginia and Maryland have a lot. Not so much New York state, although it has some with Fort Drum.

But then in New England there are a number of states, relatively small states with shipyards or what have you. That even though a lot of their traditional fashioned air force and army bases have shut down, they still have a lot of the shipyards.

So basically, the northeast through the mid-Atlantic states on the east coast is an area of relative concentration. And then Florida over through the deep south, Mississippi, Alabama. Not so much Louisiana, but over to Texas is another area of relative concentration.

The Pacific states relatively high for the most part. And then sort of the center north of the country not as much, and relative to GDP. And relative to their population as well. Is that a fair way to paint a picture of where defense activity is concentrated in the United States?

MS. CHIMIENTI: Yes. I think so. And I think, you know, you want to not forget about the southwest especially as we're ramping up missile production again and other kinds of testing.

There is -- I wish I had a slide. But on page 14 of the report, we do show kind of a color saturation map of total spending across the states as a share of state GDP. And that might be something of interest to the audience.

MR. O'HANLON: Good. I'm going to go to the audience questions now. I'm not going to ask you to respond to this right away, but sort of a follow on to what I was just talking about.

And a nice segue to our second panel will be to the extent, Elizabeth, you're able to describe where the most important areas of high technology manufacturing occur separate from overall defense spending? So sort of looking not so much at the bases and the people, but more, you know, at the uniformed personnel. More at the industry and the research laboratories.

And I know you just alluded to the southwest. That's going to be part of any such answer. But let me just let that question sit for a second and put maybe -- I think we have about six or seven questions. So I'm going to try to batch them or, you know, group them in about three each. And then give you a chance to respond. You don't have to both respond to every question, but maybe pick one or two if you could.

So the first question is money being placed to dismantle legacy systems -- this is maybe more for John -- as well as modernization? And so, we're thinking of, in this case, he's referring to technology that can mine power from dismantling landfills?

So the next question would be is there way to include states like West Virginia, other industrial or mining oriented states, other states in sort of the Appalachian or industrial "west belt" regions, the broader Great Lakes region. Is there a way the DOD can and should be trying to spread more of its resources into these areas? You know, a lot of times the talk is about getting Silicon Valley more involved. But we know California is already involved. Massachusetts is already involved. What about the heartlands so to speak?

And then the third question gets to small communities and small businesses. And the question is is there a way they can help support the national defense strategy? So not just asking for handouts, but sort of the John F. Kennedy, ask not what your country can do for you, but what you can do for your country. Is there something small communities and small businesses can try to do more themselves even within the existing budget and the existing set of laws and regulations that govern defense procurement?

So that's a lot to chew on, but I hope we can get a couple of thoughts from each of you starting with John, please.

MR. FERRARI: Yeah. Thanks. So I think the most significant thing that's happening right now in the Congress is that China Competition Act. And it got bipartisan

support in both chambers, right? The bills are different than the House and the Senate.

But it's going to fund depending upon, right, which version. Anywhere from \$50 to \$100 billion of production and also rare earth metals, right? Things to disentangle our supply chain from China. So if you look at West Virginia, the heartland. Somebody talked about mining. A lot of that work, a lot of that the jobs that used to be there and the facilities, right, all went over when we outsourced manufacturing to China.

And now, there's a big desire to bring that back. And so, you see that I think some of the -- there's talk about building semiconductor plants intel, right, in the industrial heartland. Rare earth metals from mining are going to need to come in production for green energy. But, you know, that's where a lot of people talk about it. But also, for titanium. You see the war in Russia. A lot of rare earth metals coming from there now that we're not going to be able to get to.

So I think that China Competition Act, if I was in industry or in the heartland, I would look at where the money might be flowing to there to see which parts of, right, kind of the nontraditional defense space are going to be beneficiaries.

MR. O'HANLON: Excellent. Elizabeth, over to you, my friend.

MS. CHIMIENTI: Okay. So, you know, I would say that I think there is high tech manufacturing clusters going on all around different materials as well as advanced manufacturing. If you talk to the folks in the manufacturing innovation institutes, they have networks all around the country.

So there are certainly hubs, but I think there is more and more opportunity to try to share the learnings of some of these really dense innovative areas with companies all around the country to help them get up to speed and adopt more advanced practices so that we as a nation can excel and protect our national security and our economic security.

So I think folks on the second panel will probably have more to share about

that, but I think the manufacturing innovation institutes are an interesting place to look for some direction.

And then in terms of, you know, what support is out there for smaller communities and smaller business? For communities that already have a high kind of concentration of defense spending or defense employment, my office, the Office of Local Defense Community Cooperation, we do have the authority to make grants to help communities with modernization.

So try to look at what is being currently produced? What the company's capabilities are, you know, broadly speaking? Not just one specific company, but, you know, what is the region doing right now? And again, trying to get a better understanding of what would it take to help those companies and the workers at those companies to work on more advanced technology or with more advanced materials?

And that kind of work, you know, it takes planning. And so, some of this is about planning, but then it's also about understanding is this going to require new curricula? Is it going to require retooling? New equipment? So there's a lot that can already be kind of pieced together at an early stage.

So I would encourage communities that aren't necessarily the most high-tech, but they'd like to see their communities get there to reach out to us. And we would certainly look with them at what their interested in pursuing.

MR. O'HANLON: That's really an important answer and thank you both for, you know, reflecting on that set of questions because if I understand you right what you're saying, Elizabeth, is that of course the United States in a longstanding matter of policy if not principle refuses to have sort of a national industrial strategy. We don't like to have the government pick winners or choose manufacturing destinations.

Of course, there's always been a history of the imperfect implementation of

that philosophy. And sometimes, things happen behind closed doors in the past that, you know, amounted to certain companies being favored. But we have a policy of a leveled playing field. But you're saying that even though DOD is not deliberately trying to move more, a higher fraction of defense industry to Kentucky or West Virginia or Ohio or Minnesota.

That you do have ways that are sort of -- at the level of seed money. At the level of transition assistance to help people get better organized to then be able to compete better in affect. But you're not really trying to make the final decision about where resources are directed. But you are trying to help people get more competitive so they can compete better for those resources. Is that a fair summary?

MS. CHIMIENTI: Yeah, I think that's correct. It's understanding what your assets are. What kind of resources you have in terms of your universities, community colleges, your industry associations? And then figuring out how to move forward, yeah.

MR. O'HANLON: Great. Okay. One last set of questions for you two. And this is great discussion. And so, maybe again you can each respond to one or two and then we'll thank you and move onto panel two. But I've got about three or four more questions.

One is again to talk about inflation. John, you've already spoken to this, but maybe, Elizabeth, you could also speak to what's the real inflation hit to the DOD budget so far? And what's the range of plausible outcomes, let's say, by the end of 2022? John already gave his best guesstimate, but I would be curious for yours.

Another question would be that most of the vulnerabilities in the defense supply chain fall below those so-called tier one subcontractors that you mentioned earlier, Elizabeth. And I think Kathleen Hicks, Deputy Secretary Hicks, recently pointed out that we've lost up to 40 percent of some of the smaller contractors. So what has DOD done to try to address that problem? Or doesn't DOD even really see it as a problem? Apparently,

Secretary Hicks does, but I'm just wondering what that means for policy?

And then the third question. University-based defense entrepreneurship programs like Hacking for Defense have sparked real excitement at the possibility of building up innovative startup communities around defense challenges. Can university entrepreneurship ecosystems help more than they have so far? Or maybe at different locations?

And then finally, what contracting mechanisms and funding streams have been identified to help fulfill the strategy from the energy and utilizes perspective specifically? I don't know if that's a question that either of you can comment on as well. So again, maybe, John, back to you and one or two of those questions you'd like to respond to that would be much appreciated.

MR. FERRARI: Thank you. So the first is I'd like to say that the universities are an incredible place to start, right? Because the Department of Defense actually has longstanding relationships and centers of industrial and technological excellence with many different universities.

If they are in Oklahoma, a lot of the munitions research and development is done at the university there. So I would think that, you know, if you're a small business or an entrepreneur, you need to look at your university and see where their expertise is with the Department of Defense and then build clusters that way.

Because it's very difficult to build a cluster that doesn't exist. Not impossible, but your best bet is to partner and infiltrate within the universities because there's money already flowing there and expertise. So that's number one.

On number two, the small business. Yes, it's a big problem and everybody has known that. And the Department of Defense, the acquisitions, the statement they've just put out a report on, right, how to shore up the supply chain. But the Department is

conflicted, right, because as much as we don't like industrial policy, we don't like industrial policy. And we have tended -- the Department of Defense has tended to contract to monopoly, my words, right? Which is fewer and fewer contracts because it feels it gets more efficient spending by having, you know, bundling up things.

So when the -- if you think on the joint strike fighter example in California, right? It used to be that the navy, the air force and the marines each had their own fighter aircraft, right? And all the supply chains that went with that. Well, we somehow thought that maybe the Soviets had it right. You could centrally plan it and we would just have one company build it, right?

Then all the redundancy in the supply chains, all the, right, go away and you wind up with something that's very efficient but maybe not very effective as we've seen with, you know, supply chain interruptions. And so, that's going to be a C-shift change in the Department. And it's still wrestling with how do you have multiple redundant supply chains?

And the answer may be start procuring in smaller and smaller batches. Procure for effectiveness and surge capability which is much more expensive than efficiency. So those are the two things. And I'll pass the baton over to Elizabeth.

MR. O'HANLON: Thank you. And, Elizabeth, yes. Over to you, my friend.

MS. CHIMIENTI: Okay. So thing I would agree is for sure the universities are a great partner for supporting innovation. And we've seen -- we have a program in our office that defense manufacturing communities support program. This is going to be the third year that we're putting out a notice of funding opportunity this summer.

And those are consortia that are trying to make long-term investments in cutting edge technologies. And one of the key partners we've seen in basically all of the consortia are universities. You know, these are folks that are trying to make long-term investments in critical skills, facilities, workforce development, research and development as

well as small business support to strengthen our national security innovation base.

So if you are not a part of one of those applications. Or your region hasn't submitted one ever, I would encourage you all to look into that program.

MR. O'HANLON: Excellent. I want to thank you both very much for a very wide ranging and productive conversation with a lot of information about the nature of U.S. defense spending today and also where it exists. Where it's concentrated in the United States. And how communities that want to get more involved and want to be more successful in the defense space might be able to make end roads in that direction.

So thank you, General John Ferrari. Thank you, Elizabeth Chimienti from the Office of Local Defense Community Cooperation. Elizabeth Chimienti, sorry. And you're both just huge contributors to an important conversation that will now without interruption segue into two other panelists who will help us think more about the U.S. defense industrial base.

In the context of defense spending, but also in the context of some of the vulnerabilities that John Ferrari and Elizabeth alluded to.

And I want to welcome Assistant Secretary of Defense, Deborah Rosenblum. The Honorable Madam Secretary who is actually doing two things. Each sounding pretty challenging to me. And a little different from each other at the moment in the Department of Defense. She is the Assistant Secretary essentially for weapons of mass destruction issues and challenges. But she's also the acting Assistant Secretary for Industrial base matters, our most important topic today.

And, Elisabeth Reynolds is at the White House. She has a background from MIT in industrial based issues as well as urban planning issues. And so, comes at this set of questions from a broader economic perspective as well as the Department of Defense or a U.S. military perspective.

So I want to welcome you both. Thank you for joining today and great to have you.

MS. ROSENBLUM: Thank you.

MS. REYNOLDS: Thank you.

MR. O'HANLON: Thank you very much. I think the most natural thing is really to start with a very broad question that also allows you to react to the first panel, if you wish. No need to if you just want to launch into our topic today.

But the broad question I have that builds on panel one, but also gets to what you both think about. Is where are the big vulnerabilities today? And we know that global supply chains for a while were just sort of economic, orthodoxy.

The way to try to make nondefense, but even some defense production more efficient by benefiting from, you know, comparative advantage of different countries. And hoping that sort of this global economic interdependence would serve all of our interests in bringing us together as a humanity.

And with the Russia/Ukraine crisis as well as China's rise over the last decade plus, we've seen the dangers of taking this philosophy too far. And of course, there's been a lot of concern in the United States. We need to worry more about our own semiconductor production capability, our own access to rare earth metals/minerals.

And a number of other areas where we may have dependencies on oversea suppliers. Some of them potentially not friendly to the United States. Optics is another example. I think casting of certain kinds of equipment is a high priority with your offices these days. Some kinetic materials, some explosive materials perhaps also in this realm. I know that recent DOD reporting has identified a short list of areas you'd like to see us get more resilient and more diversified.

So maybe if I could, Secretary Rosenblum, if I could start with you to

comment on those specific areas of concern. And how you've prioritized or identified them and what you think sort of the broad policy environment is that we have to create to try to mitigate those vulnerabilities with time.

MS. ROSENBLUM: Yeah. No, terrific. Thank you, Michael. I think we are living certainly with the conflict in Ukraine. And I just got back from joining Secretary of Defense, Lloyd Austin, for the meeting that he hosted in Ramstein with our allies. And my participation was very much focused on longer term challenges associated with the supply chain as well as obsolescence.

But to address what you talked about. I think we've got a number of vulnerabilities at the Department. And it's really manifested itself not only coming out of COVID-19, but also as the national defense strategy really has a sharp focus on strategic competitors in China and then the acute threat certainly from Russia.

It's really forcing us, as we rightly should, to have a real hard look on the resilience of our defense industrial base, and how we are doing with our supply chain. And as many of the panelists talked a little bit about before -- and, Michael, you made note of, you know, we find that we're overly reliant for some of the key critical materials and elements within our supply chain with China.

And it's an area that we absolutely recognize as a vulnerability. We also very concerned that we have lost track of the supply chain below the prime. And that is something that I believe Jonathan had spoken to. And so, we really need to spend some time working with the primes to better understand where does the vulnerabilities are with some of the sub-tier.

Workforce is another area that we're very concerned about. Ensuring that we have an adequate workforce for manufacturing predominantly that is really up to the task of a lot of the work that we're going to be needing to do. And then we also need a lot of new

entrance into the defense industrial base. Your panel talked a little bit about small business.

And as you noted, Michael, the Deputy Secretary has noted that we've really seen a nutrient and a consolidation amongst small businesses. And they really are the energy and the focus for innovation within our country and our industrial base broadly. And so, we're trying to set out a strategy to bring them into the defense industrial base and to bring them back.

So those are probably the key industrial base challenges from the Department of Defense perspective that we're working on. Very mindful, though that it's all part of a broader administration strategy that I would differ to Elisabeth to talk to right now.

MR. O'HANLON: I'll go to her in just a second, but I did want to follow up on the subcontractor question.

MS. ROSENBLUM: Yeah.

MR. O'HANLON: Just to make sure we're -- because I know you thought a lot about this. And I want to make sure I'm hearing you right and sort of creating the right picture in my mind of who those subcontractors are.

Because sometimes there's a lot of talk about bringing in Silicon Valley. You know, we want to innovate more quickly. We want to innovate with less red tape. We want to go at the same speed that, you know, Steve Jobs could invest the iPhone, et cetera. And people build up this sort of mystical sense of West coast magic or that of Route 128.

And I know that's part of what you're talking about, I'm sure. But I also wonder if when you and Secretary Hicks talk about 40 percent of the subcontractors going away. You're also maybe talking about the mom and shop machine of company in Ohio that makes ball bearings or something. And is a more traditional kind of manufacturer, but still probably quite impressive technologically but also fragile economically and financially. Am I right that both of those kinds of images should be part of this conversation?

MS. ROSENBLUM: Yeah. They are. And they link, but they absolutely are.

And I think what we're seeing right now in the challenge with the invasion of Ukraine really speaks to that as a concrete example. Much of the munitions and artillery that are needed by the Ukrainians that the United States along with our allies have been donating in very large amounts are ones where we have lost sight of what it will take to bring back the production lines for some of them.

And this relates then to the replenishment where -- because these are being taken out of stock. Some are being bought new, but it's predominantly right now being taken out of stocks to the drawdown mechanism.

And so, when we look at from a Department of Defense how long is it going to take us to replenish that? And then when we go to the primes and say, okay, if there are new orders to be put in or we want to replenish that. When they along with us begin to look deeper into it. It is the individual small businesses as you said, Michael.

The mom-and-pops that are making the ball bearings. That are making some of the pieces that have honestly become obsolete. These are not hot production lines. I mean thankfully, the United States has not had a need for this very large volume of munitions and artillery. And we also are pivoting to newer and more modern variance on them.

And as a result of that there are some very serious businesses that have either gone out of business, are no longer able to produce what is needed in these munitions or they have issues around the workforce. We're just now coming out of COVID-19 and seeing a very large displacement of the workforce kind of throughout our country.

And so, it is once you kind of peel back, it's a large number of, you know, interwoven issues that are compounding the problem and making it longer and longer to be

able to produce the munitions and other kinds of weapon platforms that we need.

MR. O'HANLON: That's great. I'm going to come back to you a little bit later after speaking with Elisabeth. And ask about the kind of tools that you now feel we have to address some of these problems? And whether the new tools that are being provided by the Congress and elsewhere are adequate to the task? Or if there are big, new initiatives still required?

But let me first go, Elisabeth, if I could to you? And I just want to invite you to comment on whatever you would like to say at this point in the conversation. There's a lot on the table. You've been listening and I know you have a perspective from the White House that again is somewhat different and broader than some of the other perspectives we've heard so far. So I wanted just to give the floor to you in that general sense.

MS. REYNOLDS: Well, thank you, Mike. And it's a pleasure to be here. And indeed, I think all of what we've heard so far is underscored some of the challenges and as you say the vulnerabilities in our industrial base. And Assistant Secretary Rosenblum has outlined what that looks like from a DOD perspective.

But I think we could all agree that it actually goes much beyond a national security perspective solely. And the pandemic has exposed the vulnerabilities in the supply chains. Climate threats have also exposed vulnerabilities in our supply chains. And now, of course, we have the Russia/Ukraine conflict that underscores a lot of this.

And so, what I believe and I think what the administration has been underscoring is we see we're really at an inflection point in which we need to rethink what we are doing with respect to our supply chains. Not only in the context of DOD and national security, but more broadly.

And when the administration came in, I think that we set a new course in thinking about what an industrial strategy that would be encompassing of not only the

national security points that have been made. But if we think about production of TPE and the difficulties we had there. Pharmaceuticals and APIs and quality generic drugs that we've had challenges with. Our semiconductors which, of course, has threatened our economic security as well as our national security. And then also the critical minerals.

Now, all four of those topics were part of the administration's 100-day supply chain report. Part of an EO that came out last February that identified these critical areas. And put them front and center as part of a national priorities, which we've now been moving on. And subsequently had another six different reports come out just last month that focused on additional vulnerabilities in our supply chains.

And so, we really need to -- I think earlier, John was saying, you know, we don't engage -- we don't like to think we engage in industrial policy. I think we're now in a new place where we need to think -- we're reactively proactively leaning into an industrial strategy where we're saying we have to have actually some domestic capacity in critical areas here because of our national and economic security.

We obviously don't need to make everything here. We want to rely on and work with our allies and partners, and we have been. But we've been taking active steps as has been mentioned already to signal to the market and to make good on vision for semiconductor production, for critical mineral production and the market is responding.

We've had so far over \$80 billion commitments from the private sector in the last year or so. Investments for semiconductors. Another \$100 million in the areas of EVs and advanced batteries. I mean these are investments about rebuilding that industrial base that has been, frankly, hallowed out for decades. And we are in a place now that we all agree, the vulnerabilities are too significant. And we are taking steps actively in a public/private partnership, I think that will help us rebuild.

I also wanted to highlight, and I think this was highlighted in the last panel

that the USICA and Competes Acts, the United States Innovation Competitiveness Act and the Competes Act that are now on the Hill with the Senate and House are a critical leg of the stool. They are the investments we need in that advanced manufacturing technologies, in our industrial ecosystems, in our stem education that are really going to also be, I think, part of the industrial strategy that we're shaping right now from the administration and across all the agencies.

So DOD is, you know, we're used to DOD having actually a vision and priorities. And as a customer able to really drive some of that investment. We now have a Department of Energy that's setting up a manufacturing and supply chain office. We now have a Department of Transportation because of our infrastructure investments that is thinking about supply chains and manufacturing.

So this is really now, you know, spread across and is a whole of government approach, I think to rebuilding that industrial base.

MR. O'HANLON: It's really fascinating, you know, for a top official in the White House to be able to say that we have a national industrial policy. Or at least that we're moving more in that direction. And reflecting, I think a bipartisan consensus that we need that. It's sort of a remarkable turn of events.

Even if somebody might have wanted to say that 10 or 20 years ago, they probably wouldn't have dared for fear of political criticism. But I think we're at a point where both parties may debate specifics but still recognize that we do indeed have an interest in certain kind of breath and depth in our high-tech manufacturing base. So I really appreciate you two driving that point home and explaining some of the ways it now happens.

Elisabeth, if I could? You mentioned a half dozen reports in just the last month or two. And I don't know if they're all unclassified and available, but what would you -
- for those of us who don't live and breathe this stuff, but recognize the importance of it.

How would you encourage us to keep track of official government findings, data, reports? You know, in panel one, we talked about defense spending by state, which has become a resource that a lot of people are aware of and use.

Is there going to be a comparable kind of annual report? Or a single go-to document or two that we should think about in this space?

MS. REYNOLDS: Well, I think that's a great idea, Mike. Now, that I -- I mean we've been running full steam as you know on supply chain issues since Day One. And so, the 100-day reports that came out last June were really the first time where we put some real analytics to the entire supply chain.

And I think one of the points that has become clear again across so many of these areas is that while each individual company might have -- and the big point there -- might have insights into their own supply chain. And has been mentioned before, actually we find that a lot of companies don't have insight into their fourth and fifth tier suppliers even on their own.

They don't have a view across the supply chain. And that is something that we've been trying to actively be a partner with companies to say, what are the vulnerabilities in our semiconductor supply chain? What does this look like across other areas? So in terms of how we do that there is a clear desire for us to analyze the problem, which we have been doing through these reports. And then to actively work on building them out. And that's happened in a number of ways.

We're certainly, I think the active engagement with the bipartisan infrastructure law which might from, you know, might not from a lot of people's perspective be an obvious place to think about domestic manufacturing. But indeed, there's tremendous amount in the law that is rebuilding our capabilities and building new capabilities. Whether it's in energy related areas, broad band, EV charging, steel production, highways, et cetera.

All of that are critical areas for us to rebuild this manufacturing base and have, you know, priorities. And so, all of those are having -- you know, are being announced and what's happening in each of those areas is being ruled out as we speak.

The other piece here is that in the Competes, USICA Competes legislation on the Hill, there is significant effort to try and support a critical supply chain resilience program that would provide resources for monitoring and analyzing our vulnerabilities so that we can get ahead of and look around the corner to understand where these vulnerabilities are.

The fact of the matter is, you know, you could have spoken to experts years ago and they would have told you there's a significant vulnerability on semiconductors. There are significant vulnerabilities. We've been reporting on vulnerabilities in pharmaceuticals for many years. Vulnerabilities in our transportation logistics. How do we get ahead of them? How can we then start to collectively address the challenges?

Because a lot of the issues here are collective action challenges. We want resilience in each company. How do we incent companies to actually investment in that because as the Assistant Secretary said or as John said too, you know, efficiency and resiliency? You need both. And that also takes resources.

MS. ROSENBLUM: And I --

MS. REYNOLDS: Go ahead.

MS. ROSENBLUM: No, no, no. I'm sorry. I was just going to jump in here. When you said your comment, Michael, of are there some key reports for those, you know, that don't follow this necessarily as closely as the rest of us. And Elisabeth, you know, outlined ones that came from the White House. You know, DOD just put out in late February and because of other world events that was going on, it became a little bit like the tree that fell in the forest understandably.

But it's our one-year report. And really what it does is it outlines the Department of Defense's strategy on the industrial base and the defense industrial base specifically. And to your earlier question, you know, it calls for the Department to do a very large increase in investments through the Defense Production Act and other tools that we have.

In the areas within the supply chain where we feel that China has a strangle hold. And so, that's on areas such as critical materials, rare earths that are vital for the development of weapon systems. It's also in -- and you mentioned this -- forgings and castings, battery. You know, the storage of energy, kinetics.

So to really concentrate our investments in five or six key areas. And then it also speaks to the importance of using, you know, means to attract the small businesses back into the defense industrial base. Really to increase competition. And this speaks to -- and I think one of our earlier panelists talk about this -- the real consolidation down to maybe five defense companies that are predominantly running as primes.

And while they certainly do very good work, there are gaps potentially or capacities that we also want to close. And we are also very focused on the workforce as I mentioned. And that's outlined in the program. Not only for manufacturing, but really taking a hard look at what some of the skills are that the Department of Defense will need for the future.

And then finally, the last piece that we often hear about within the context of (inaudible) is really taking a hard look at where adversarial capital is flowing into our country and buying up some of the capacity. So it's really looking at promoting positive things that we can do here within our country or with our allies and partners. And other ways in which we need to take a really hard look at where capability might be bought out from under us.

MR. O'HANLON: That's fantastic. And so, I would like if I could. I've got

sort of one more big question to pose to each -- the same question for each of you.

Which ties together and just ask you to sort of drive home one more time the state of play with policy responses to these challenges. And if you could please -- you've already both mentioned some of the tools we have, but if you could quickly summarize a couple of the key tools that the Congress has in recent made available to presidents. But also, what we still might need that we don't have yet?

So a two-part question, but I think it's, you know, again this issue is so important and relatively understudied by a lot of us. And only increasingly now in the public eye that it's probably worth just driving home answers to those two questions. So where have we made progress with the kinds of tools? Whether it's money for subsidies? Whether it's regulations? Whether it's something else that really has helped? Now, we have to go through the long process of implementation. It's going to take a while, but we still have the tools.

And then where are the tools themselves still lacking? If I could begin, Madam Secretary, with you please? And then go to Elisabeth in the White House.

MS. ROSENBLUM: Sure. Absolutely. So, you know, one of the areas that absolutely, I think, we're seeing much greater agreement between the executive branch and defense and the Hill has to do with the level of investments.

I think if we went back a couple of years, you know, the Congress was doing plus ups to the defense budget particularly in the area of industrial base. And really the ability to use the Defense Production Act. And in the President's budget that was just released, the Department is asking for \$1.3 billion which is a significant increase.

And what that will allow the Department to do is make some key investments particularly in developing the supply chain domestically.

Another area that is one of the things that we're focusing in on is using more

of the tools that we have. So I would take what you just said, Michael, and mention it slightly differently. I think it's more incumbent upon us to be more creative about the use of the tools that we do have. Both those that have been given to us certainly by Congress. Those that we saw through COVID-19 and the use of the Defense Production Act. But it's also things like public/private partnerships that we're entering into with universities and community colleges and trade schools on training the workforce.

And it's coming up with different ways and approaches so that we are really getting better not just tools but use of those tools on a long-term basis in that area.

MR. O'HANLON: Great. Thank you. And, Elisabeth Reynolds, if I could? The same question to you please. Which tools have we now acquired and, you know, need to be creative in implementing them and employing them? But then also which new tools may we still require?

And maybe you could also touch on the Semiconductor Production Act where that stands in terms of the resources for those? As well as critical rare earth metals? Those two specific areas I'm curious about as well, please.

MS. REYNOLDS: Yes. Well, again, we've -- I think we've laid out a course. This sort of an industrial strategy that's highlighted a number of key areas. And you've mentioned two of them. So the first was, of course, to use the tools of identifying where the challenges are. And in both critical minerals and semiconductors, we've used a number of different tools or are using or proposing to use a number of different tools to bring resources to bear on those supply chains.

So if you look at critical minerals, for example, obviously we've used the Defense Production Act to try and build more of the capacity here. Domestically, there's been a number of contracts that DOD leads and DOE have led to try and bring new capabilities into the U.S. and build, for example, you know, end-to-end domestic supply

chain for permanent magnets. We recently -- there was announcements about that.

In semiconductors, the Chips Act which is part of what we call the Bipartisan Innovation Act. Is actively going to provide resources to invest in production here, fab production. But also build up a larger ecosystem, the workforce, the supply chain. All the things we need to support and enable the scale up of semiconductor production here in the U.S. including R&D and our ability to be at the cutting edge. Not just of legacy chips, but also of cutting edge of new frontiers of chip production.

So I think all of those are tools that we have and that we're looking to, you know, to build. I think as I mentioned before, the resources that are in the bipartisan infrastructure law also speak to that.

But another tool that I think is worth mentioning here is procurement. And the made in America provisions that have been now really reinforced and strengthened through the administration are another tool. A tool in the toolbox that will help us identify where there are gaps in areas that we want to be rebuilding and then providing incentives, if you will, for investment in those areas. And I think we're already going to be seeing responsiveness to that made in America piece of the tool, you know, tool in the toolbox, if you will.

In terms of areas where I think we could strengthen more and work more. We clearly need to find ways to help support our small and medium sized firms to invest in new technology. What we know is that our small and medium sized manufacturers are about 40 percent less productive than the large firms. And that's largely -- it's at least a third of that is based on the fact that they're not investing in new technology. It's a bit of a chicken and egg. How do you make that investment?

DOD has been, I think, one of the, you know, has a pathway forward that helps incent companies to make these investments often. But we need to expand that

across, you know, across a broader set of industries and firms. And so, that's one area that I hope that we will find ways. And we are actively looking for ways to find financing for these small and medium sized firms.

The Exim Bank just -- the board just passed and approved the creation of a new domestic manufacturing program that would invest in domestic manufacturing companies and projects as long as some percentage of the output is exportable. So that's an exciting new tool that's also on the horizon.

MS. ROSENBLUM: Michael, if I could just add one -- two more things actually to what Elisabeth said that kind of sparked a thought in my mind?

You know, one of the things absolutely when she mentioned procurement. You know, we here at the Department of Defense have to make it easier to do business with the Department of Defense. And that looks to, you know, really using much more flexible acquisition authorities that we already have. And so, it's not a matter of needing new authorities, it's using some of the more flexible ones like mid-tier that we have.

And it also at the Department, we need to do a much better job of particularly with small businesses of demystifying doing business with the Department of Defense. And that's where programs like the Mentor Protegee become very important so that when companies have good ideas, they don't just die there. But that the Department is actively working with companies on how they can do business with us. On how they can be mentored through that process? And how they can become part of the Department as opposed to dying within the valley of death, which is usually talked about in that transition between research and development and actual acquisition.

The other thing that I wanted to make note of and Elisabeth very rightly spoke about the, you know, Buy America Act. With my DOD hat on and the amount of work that we do with allies and partners, we've actually needed to spend a bit of time talking to

them that that doesn't mean we're only going to be focused on the United States. And that we're going to be only trying to develop all of the capacity and the supply chain here.

But rather that it is that we responsibly need to be developing some of the capacity here. But we also need to be working with our closest allies and partners who may have elements of the supply chain that we need. And particularly, in the near term when it's going to take our country a while to develop the domestic capacity that we need. We really need to be able to be working much more closely with our allies on industrial based policy.

And again, that was something that we spent a bit of time talking about in Germany earlier this week. And when we spoke with many of the allies in finding that not only do they have certain capabilities or certain supply chain areas. But they also are heavily dependent on components being made here in the United States with some of the weapon systems that they have and are donating and ultimately want to replenish.

So, you know, the Buy America while important does not mean it's only America.

MR. O'HANLON: It sounds like as we wrap up here, it sounds like some of the tools that you want us to use involve subsidies and financial help for a company that may be struggling or maybe American based and does not have enough business. And you're trying to wean the supply chain off of a foreign producer especially a potentially hostile one.

Some of it has to do with mentoring companies to shepherd them through the DOD acquisition process so that they can get into that space. And some of it may just be in the form of mandates like the Made in America Act where you basically tell a lead contractor that they can't use foreign suppliers at least as much as they did before. Am I right? This is a combination of subsidies and mentoring and sometimes just straight regulation? Is that a good way to summarize?

And then I guess the final question --

MS. ROSENBLUM: Michael, I would add one more leg to your stool there. And that's our keeping a very close eye on adversarial capital coming into the United States and investing in capabilities that we want to have reside here.

And that we want our government to be able to have access to. Because if it's foreign owned, it becomes very difficult then for the U.S. government to be able to use whatever that company is supplying or providing.

MR. O'HANLON: So one very quick wrap up question. I know we're at time and we're very grateful for your time. I know how busy you are. I don't want to extend the audience's patience either, but this has been such a rich conversation.

I think I'm hearing maybe somewhat unusually for these times, a pretty good story in policy terms about the, you know, supposedly this dysfunctional United States political system identifying a lot of problems and starting to figure out some answers, and make some decent headway.

And so, I guess the question would be am I right? Are you both feeling encouraged by what you're seeing? And yet, if there's -- because we never want to be complacent or spike the football in the end zone too soon.

Is there some specific thing that most keeps you up at night that you would most want to call attention to and either ask for a congressional action or some other kind of policy reform? Because there still is for all the progress, some glaring vulnerability that you really do worry we're not getting after at well enough yet? If that question makes sense? If I could start with you, Dr. Reynolds, and then go to you Secretary Rosenblum as we wrap up?

MS. REYNOLDS: Well, that's a great wrap up question. And indeed, I do feel encouraged by bipartisan support. A very clear strategy. A momentum that says we need to get ourselves on a different course. And I think we are at an inflection point with all of the challenges we faced. Whether it's pandemic. Whether it's climate. Whether it's now

geopolitical.

So I do think you're seeing the setting of a new course. The indications of a strategy and response to that strategy. So not just the U.S. government but also the private sector responding to some of the signals we're putting out there.

In terms of what I'm particularly focused on for our manufacturing agenda. For me, and this is -- you know, we touched upon it I think in many ways. I would like us to be, you know, continue in the excellence we've done with inventing new technologies, advancing those technologies. Again, I think the Bipartisan Innovation Act is an incredibly important piece of our ability to do that. But we need to be able to scale them here.

So not just -- we have an incredibly strong startup ecosystem. We need an equally strong scale up ecosystem. And that is part of what I think DOD, you know, has been a big partner on that. DOD is essential to that strategy, but it can't do it alone.

We need, you know, a broader approach to it. It's about building out our ecosystem. It's about making sure that companies are, you know, find the capital, find the talent, can scale here and not be actually pulled abroad and do that elsewhere.

MR. O'HANLON: Excellent. Same question to you, please.

MS. ROSENBLUM: Yeah. I'm going to piggyback on what Elisabeth just said in terms of -- I mean, one, I am very optimistic. I think we do have a time that there is strong bipartisan support around the need to strengthen the defense industrial base and address some of our supply chain needs.

That said, you know, these are challenges that have taken decades in the development. And they are not going to be solved by turning on a dime. And so, to your question about kind of what keeps me up or where I really try and focus a lot of my effort is, you know, one, on the small businesses.

And as Elisabeth said in terms of her focus on making sure that we are

there with innovation and the development of new technologies. Really, small business kind of across the board, not just in Silicon Valley, but throughout our country is vital to that. And so, we have to find a way to engage them and bring them back to their interest in doing business with the government.

And then the other thing I worry about -- and worry is probably not the right word. But am focused on is really the workforce around the skills that we're going to need well into the future. And just as, you know, we talked a little bit about universities and community colleges, you know, that's good for some of our immediate needs. But it's really something where we as a country need to start investing in this starting in kindergarten. Where it's really the stem agenda and, you know, making it clear what a profession in manufacturing looks like.

And what, you know, what these different areas are where our country has really deep needs, and it's revitalizing that. And that will just take time and consistent bipartisan messaging.

MR. O'HANLON: Listen, thank you both. I've learned a lot in this conversation. I want to thank you as well as the panel one presenters. And I appreciate very much what you're doing for the country. And it's, you know, sort of the (inaudible) and the foundations of its long-term strength.

So, Secretary Rosenblum, Dr. Reynolds as well as those from panel one and everybody who is tuned in today. Thanks very much and signing off. And best wishes from Brookings.

MS. ROSENBLUM: Thank you so much, Michael.

MS. REYNOLDS: Thanks.

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