

Marillyn Hewson ([00:04](#)):

In the past few decades of economic competition with China and others, America has lost its capacity to manufacture many vital and strategic products. At the same time, China has actively studied and sought to exploit gaps in our technological capabilities. These grim developments have come together to threaten our nation's economic leadership, our nation's security, and global stability. For this reason, we must strengthen the skills and capabilities of the American workforce and American manufacturing.

Marillyn Hewson ([00:42](#)):

Although the challenges that we're confronting are not new, our task force findings indicate that we are at an inflection point. The task force has identified a number of concrete steps that Washington State governments and businesses must take together to build a more skilled workforce, to support innovation, and to strengthen our national security and economy. The starting point is the American worker. Our workforce is the source of every competitive advantage for our nation. And winning the war for talent is the foundation stone for prevailing in geopolitical competition.

Marillyn Hewson ([01:22](#)):

Manufacturing firms have studied and they have struggled to hire people, and productivity has stalled because American workers lack opportunities to develop new skills or to build technical credentials. As the pace of technological change accelerates digitization and automation are creating demand for new skills faster than our current workforce training systems can keep up. The nation has seen spikes in the number of people looking for work, and at the same time spikes in the number of available jobs in manufacturing. And while that sounds like a paradox, it is indicative of the core workforce challenge that we face. Those looking for jobs are in they're in the wrong place, or have the wrong skills to fill the openings.

Marillyn Hewson ([02:11](#)):

We must close the skills gap. We must repurpose federal education grants and funding to support employer responsive sponsored training programs. Employers should be able to compete for federal funding, usually reserved for colleges. Washington and state governments can further help workers by matching investments in training, by supporting students in select STEM programs, and by requiring colleges and universities to develop stackable credential pathways. Companies should take responsibility as well, and they should prioritize workforce development among their many priorities.

Marillyn Hewson ([02:52](#)):

These steps would attract talented people towards manufacturing jobs and build a workforce that's fluent in the digital technologies needed to preserve the US strategic advantage. The second imperative is to increase access to capital. American firms do not compete on a level playing field. Other countries subsidize and protect their domestic industries. And China's use of unfair practices from industrial espionage to force technology transfer is well documented. As a result, US companies struggle to find low cost capital and make vital investments in cutting edge digital technologies, in more productive manufacturing processes, or in new facilities and plants.

Marillyn Hewson ([03:40](#)):

The status quo sets us back in the race for technological leadership. It hollows out our military capability and it hurts American workers. That is why we believe the federal government should support

innovative uses of public financing to attract private capital toward critical sectors of national security. This could take many forms which are described in the report, but I want to highlight one in particular, a mission focused sovereign fund. Modeled after sovereign wealth funds around the world, a US industrial investment fund could provide long-term stable capital to strategic sectors through loans, grants, and equity investments.

Marillyn Hewson ([04:24](#)):

And it could function as a central forum connecting public and private capital with researchers, innovators, and allies and partners. Whatever its design America must leverage its uniquely dynamic capital markets to spur, focus and competition in national security critical sectors. Next, we must address the fragility of the supply chain. Americans have become painfully aware of these vulnerabilities through the pandemic. As a nation, we must rebuild supplier ecosystems and improve policy coordination. Small and midsize manufacturing are disappearing at great cost, especially for our defense industrial base.

Marillyn Hewson ([05:09](#)):

Chinese dominance in manufacturing creates many challenges, but so do unstable budgets and poor government coordination. Congress can address some of these issue. Not only must we avoid a full year continuing resolution, but Congress can also update and modernize the Defense Production Act for an era of high tech and strategic competition. Finally, the United States must work closely with our allies in this effort. China has put forward clear plans to develop its own high tech industries, set technical standards, and win the technological race. Its strategy is well documented.

Marillyn Hewson ([05:52](#)):

It ties billions of dollars in investment in subsidies to industrial espionage and forced technology transfer. The United States must respond with speed and agility. We can strengthen our supply chains by leading a coordinated effort with our allies and partners. International competition cannot come at the expense of US interest or the security and well of Americans. Fortunately, the Trump administration laid the groundwork for this, with the United States-Mexico-Canada Agreement and its work to combat Huawei. The recent submarine deal with Australia and the United Kingdom also shows the potential for greater military collaboration.

Marillyn Hewson ([06:34](#)):

We should build on this foundation. We should secure America's vital supply chains through reassuring some production, sourcing goods from trusted partners, and building up our defense industrial base. If we do it right, we will build a counterbalance to China, strengthen our military and create resiliency in our system so America can get the medical equipment, the cars, the electronics, and other valuable goods they need. This is just an overview of the task force. You can read it in great depth in this pamphlet that you've received, but I do want to emphasize two conclusions. One is that none of these recommendations will solve the problem alone, but if taken together, we are confident that they can begin to address the unacceptable status quo and reinvigorate our national workforce, our manufacturing capabilities and enhance global security.

Marillyn Hewson ([07:32](#)):

And secondly, the time is now. We must act with haste. There's no time to waste. Before I leave the stage, I would like to thank again, my co-chair David McCormick, our entire task force and Roger

Zakheim and Rachel Hoff of the Reagan Institute for their extraordinary support. Now it's my pleasure to turn the session over to our outstanding group of distinguished panelists and to let them share their insights in the task force findings and recommendations. Thank you.

David McCormick ([08:04](#)):

Thanks everybody for being here. Good morning. I just want to do a little bit of housekeeping. For our live audience and viewers online please submit questions via the Reagan National Defense Forum app and on Twitter via the #RNDF. Thanks. I've got an iPad here and I can see the questions. So this report, as we just heard is chalk-full of recommendations and analysis. I'm grateful to have some folks here who can discuss the report from their different perspectives, Congresswoman Chrissy Houlahan on the task force that authored the report, similar to a congressional task force. You probably also see this from your air force and corporate backgrounds. Dr. Nadia Schadlow with a Hudson Institute, formerly deputy national security advisor, author of the Trump administration's National Security Strategy.

David McCormick ([09:10](#)):

And Bob Sternfels, global managing partner for McKinsey whose research underpins a lot of the report. So I just want to allow each of you a couple of quick minutes to react to what we just heard here, and then we can go into deeper questions. We have about 45 minutes. So feel free to roam a little bit if you want. Also, we can talk about why Bob McCormick's not here, if anybody wants it. He was supposed to be here. We have 10 extra minutes. It might have something to do with Senate race in Pennsylvania, but anyway... So without further ado.

Chrissy Houlahan ([09:47](#)):

Me first?

David McCormick ([09:48](#)):

Sure.

Chrissy Houlahan ([09:49](#)):

Hi everyone. I'm, Chrissy, I'm really glad to be here. And my reflections do obviously have a lot to do with my background. My kind of engineering education is industrial engineering. I was educated in the late '80s and early '90s, and supply chain management was something that was core to my higher education and continues to be something that I use all the time. And my reflections on the work of this body, as well as the work of the HASC, similar task force are that they overlaps are profound, but one that's most remarkable is workforce, which I think Marillyn highlighted. In fact, the HASC Task Force didn't even plan originally to talk about workforce and the importance of people in the supply chain until they discovered that it just kept coming up, over and over and over again.

Chrissy Houlahan ([10:38](#)):

And so what I would like to spend as much time as I am able to talking about is that when you talk about shocks to supply chains, when you talk about sovereignty, in terms of control of our supply chains, you're really talking about a fundamental part of the manufacturing process, which is the people who do the work. And we need to make sure that we are thinking not only about reskilling and upskilling and all the things that Marillyn talked about, but we also need to make sure that we're thinking about the next generation as well.

Chrissy Houlahan ([11:07](#)):

So there's real useful conversation to be had about the importance of Pre-K, the importance of early childhood literacy, the importance of making sure that people all the way up through the process to have the skills they need to be able to perform the tasks that we're asking them in this modern economy.

David McCormick ([11:27](#)):

Dr. Nadia Schadlow?

Dr. Nadia Schadlow ([11:27](#)):

Thanks. I have no experience with engineering at all, so I'm just... My goal is to offer a few thoughts about how to think about the report and as you read it and contrast to the way China is approaching some of this problem set. So I'll offer three ideas in terms of overarching, the way, China's approaching manufacturing. First, China used globalization in a deliberate effort to control its own vertical supply chain. The United States approached globalization as an opportunity to specialize and essentially to offshore. The Chinese actually did the opposite. They thought as an opportunity to bring manufacturing to their country. So that's one of the fundamental differences.

Dr. Nadia Schadlow ([12:15](#)):

Second China chooses national champions and the report actually, I don't know if it's fair to say, it rejects it. But the Reagan Foundation report talks about national champions, but says, "This is not the way the United States should go." But I think that's something to think about. It's something for discussion, and I'm sure we'll get some questions about that. But it's a deliberate strategy also that China has taken, and it's also done quite well, right? It went from building no ships essentially in 2000 to being the largest ship-building country in the world. So it's actually worked for them. Huawei, they're over 90 national champions, and that's been a deliberate part of its manufacturing strategy.

Dr. Nadia Schadlow ([12:58](#)):

Third, it has appreciated the link between innovation and manufacturing. So early on it understood that when you're manufacturing, a lot of innovation actually comes from that as well. And I think I encourage you to read some of the people early on who were recognized this. Some experts in the US, Willie Shea, Professor Coda, Tom Mahoney, they've written really interesting articles about this really important link. I think now we're shifting to begin to understand that, but it's important to know. So I'd highlight those three differences and then I'll take, hopefully, some more questions. Thanks.

David McCormick ([13:35](#)):

Super.

Bob Sternfels ([13:36](#)):

Well, it's great to be here. I guess as I waded into this, I'd start with a thanks to Marillyn and David for leading us through this. I do think the comprehensiveness of what's in the report has lots of potential to be a catalyst across a topic that is... It's central to defense, but it's far broader. I would also say this is one that is a personal passion of mine as well. I had my first op-ed in the wall street journal on this topic in 2004, which talked about the notion of offshoring being overrated, which in 2004, went down like a lead balloon. But it had the notion, shockingly, that short supply chains are better than long supply

chains. That labor costs and highly engineered products are less than 15% of cost of good sold, that we could actually get this right.

Bob Sternfels ([14:28](#)):

And if I look at the last two years and the conversations that I've had with CEOs across all industries, I think the thing that has come home is that we undervalued resilience. And to your point on efficiency, we might have pushed the efficiency frontier, and we actually undervalued this notion of resilience. So I would start with, I do think this is a central topic. The second thing I would say is I would argue this topic is much more holistic and critical to get right for us. It's critical from a defense point of view, but quite frankly, it's critical for an American economy and American way of life point of view. If we do get it right though, there's enormous potential. We've done some work that says, if we can revitalize US manufacturing, that's anywhere between 275 and 460 billion added to us GDP every year.

Bob Sternfels ([15:18](#)):

So we can drive growth through this, which is a good thing. Back to the notion of skill building in the next generation, this could be incredibly inclusive if we get this right. And we think about millions who could join the workforce in the heartland of America with well-paying jobs. And then one we haven't hit on, but this notion of climate, which is the question of our generation. The nice part here is the next generation manufacturing technologies allow us a twofer. We can actually be less emitting and more efficient on that front and more productive and actually avoid the trade off. So I might pause this notion, and also, this is a broader topic as we wait into it.

David McCormick ([15:56](#)):

All right. Thanks for those. Well, I wanted to start out with a question... Well, like a reporter writing a story, you want to start out with something that grabs people's attention, and something that grabbed my attention was the statistic, and there's a slide for it. See if the slide comes up. All right, well, there are 974,000 unfilled manufacturing openings. And that really challenged my expectations. I thought we have a lot of workers looking for work. I didn't realize that there were so many unfilled jobs and that there was this gap in the workforce. But that lagging productivity, lagging capital investment, fragile supplier networks, those were all features of this report. And I wanted to go to you first, Bob. Can you paint a little bit of a picture here? How dire is the situation and how did we get here?

Bob Sternfels ([17:05](#)):

It's a spike.

David McCormick ([17:05](#)):

Yeah.

Bob Sternfels ([17:06](#)):

Look, I'm right with you. I'd say three things. It is dire, it's solvable, but we need to be radical as we think about solving it. And let me double click just a bit on that. If we go to Dire, some of the things that I would call out is our increase in productivity in manufacturing has atrophied from roughly 5% a year to almost nothing, hovering at about 1% a year. You made the mention of the spillover with R and D. Well, manufacturing is only 11% of US GDP, but it represents 70% of the private sector's investment in R and

D, 70% of the private sector's investment in R and D. So the implications around innovation of not getting this right are enormous. The other aspect is back to this notion of inclusion.

Bob Sternfels ([18:01](#)):

It's eroding our way of life. We've lost 4 million manufacturing jobs in the last 20 years, four million on net. We've also lost 70,000 small and medium size enterprise that support the supply chains in manufacturing, 70,000 small and medium size enterprise. And interestingly on a relative wage rate basis, manufacturing jobs aren't as attractive as they were anymore. There was a study as latest 2016, which said one third of manufacturing workers rely on food stamps, one third, right? So it is dire. Now I'm an optimist. So let me go to the next part. It's solvable, right? This is solvable.

Bob Sternfels ([18:43](#)):

If you look at the existing technologies in what we talk about in industry 4.0. So this isn't about NextGen technologies, it's about existing technologies. Our estimates are that would add 40% to productivity in US manufacturing, 40%. It's a massive leapfrog if we can implement the technologies we have today. Equally, back to the skills that workers need to implement this technology, it's not unknowable, right? We know the exact skills that workers need to have to be able to implement industry 4.0 technologies. So it's a solvable problem. And maybe finally, the private sector, I've had the chances I've transitioned into my role over the last six months to talk to over 400 CEOs across sectors, there isn't one that doesn't talk about the top priority to upskill and reskill the workforce.

Bob Sternfels ([19:36](#)):

So I think you do have a different ground in terms of a receptivity on the private sector to radically invest here. But it may come to then my last point which is incrementalism isn't going to get us here. We do need to think pretty radically in terms of solving this problem, and I'd highlight a couple. The way we think about education today won't get us to this... It won't solve this problem. We have to think about how do you upskill in mid-career. Stepping out of the workforce and not getting paid while you get reskilled is not viable. So how do we think of about boot camps? How do we think about more continuous learning? How do we actually think about incentives for employers to upskill?

Bob Sternfels ([20:19](#)):

Think about the incentives for physical capital versus the incentives for human capital. They're totally different. And isn't human capital actually our most important asset. So how do we create an environment and incentive framework that allows us to do this? And potentially given this gap is so large. Could we ever think about a different approach to immigration that actually focuses on skills, a skill-based approach to this? But these are some of the radical solutions that might help us close this gap.

David McCormick ([20:50](#)):

And Dr. Schadlow, I wanted to see if you wanted to elaborate on any of the points that you had made earlier. Since we're talking about, here's the hand that the United States is playing with. There is a sense of urgency in this report, and I think it's because of the American position relative to China. And we're looking at this in the framework of competition with China. Anything that you wanted to go into greater depth with? Like, what do we know about how China approaches some of these questions?

Dr. Nadia Schadlow ([21:23](#)):

Well, I think that everything Bob said is... There's an urgency to it, but the problem is as a government, I think we still are struggling with how to actually implement many of the recommendations in the report, the actual follow through and the implementation and the thinking. We haven't really decided as a country because there is no one way to do it, of what our theory is for government role in this whole sector. I mean, the semiconductor sector is a good example of this. Everyone is lauding the CHIPS Act, which is now part of the US Innovation and Competitiveness Act. And everyone's very happy about the \$52 billion that's in that to reenergize the US semiconductor sector.

Dr. Nadia Schadlow ([22:11](#)):

But when you actually go one level further, there's actually the possibility that that 52 billion is not going to really end up making a meaningful change because there's no consensus of how to spend that money, right? And so, it might be specific, but I think it's actually a good example of how we're struggling as a country to figure out what the role of government... It's not just more money. It's how that money is spent. Do we put it in early stage R and D in that sector? Should it go to fabrication facilities? Should it go to R and D for design companies? Should it go to universities?

Dr. Nadia Schadlow ([22:47](#)):

There's no decision on that. So I'm actually a bit of a skeptic on what will happen to that 52 billion, whether or not will have a measurable impact on an important manufacturing sector in this country.

Chrissy Houlahan ([22:59](#)):

Yeah, I'd like to kind of drill down on both of what you all have lined up, which is that, first of all, that act that you're referring to, USICA, hasn't passed. And so we can talk all we want about how beautiful it would be if we had billions of dollars in the CHIPS Act or in that industry, but as you've probably noticed in Congress, and particularly the relationship with the Senate and the Congress, those kinds of things that would seem like layups and obvious solutions, at least we would have the money and then we could fight over how we're going to spend it. It still hasn't passed, and hopefully that will be something that will be taken up in the new year by the House of Representatives.

Chrissy Houlahan ([23:38](#)):

So I share your despair, but for a different reason on that particular issue. And when you were talking about upskilling, reskilling, what would obviously be adults in our population? And I started off by talking about children and the importance of next generations. I think one of the things that we're struggling with when we look at this graph that went away for you all, but shows this gap and manufacturer struggling to fill openings is these are not all high tech, high skilled jobs. I have a chocolate manufacturer in my district that makes the Easter Bunnies for most of the country. And they have 200 manufacturing jobs that are open right now, good paying manufacturing jobs with really good benefits as well.

Chrissy Houlahan ([24:23](#)):

I have a truck track chassis manufacturer in my district. Again, not terribly technical jobs with more than a hundred jobs that are available right now. And so as much as I appreciate the fact that we need to make sure that we're bringing in high skilled labor as an example, immigrants, we also need to just look at what we have and whether the people that we have right now even honor, and respect the availability of manufacturing jobs. Because I think that this country has undermined the importance of manufacturing. And we talked to our kids about that, "This is not a place where you want to be, where

you want to be is in college, where you want to be is... And your parents are telling you that, and your school is telling you that."

Chrissy Houlahan ([25:02](#)):

And we need to make sure that we're instructing the opposite, that having people understand that it's okay, it's honorable work to be in the manufacturing industry. And I think one of the suggestions, both of the HASC, Armed Services task force and the Reagan administration task force is that there needs to be a collaborative initiative that is government driven, that is enterprise driven, that is education driven. That elevates the status and stature of being involved in the manufacturing sector in our economy. I, as I started the conversation, went to school, got an industrial engineering degree.

Chrissy Houlahan ([25:36](#)):

Almost all of my colleagues went to McKinsey or Bain or investment banking. I was probably one of the only out of a hundred people who graduated, who actually went into manufacturing because it was a stigma. That's not what you do with that kind of a degree. What you do is you go make money on Wall Street. And that is still the thing that happens today. And we need to stop that kind of narrative. I hope that with COVID one of the benefits of COVID is that we've seen the importance of manufacturing and we've seen the vulnerability and what it means to national security. And we've seen that it's honorable work to be involved in making things.

David McCormick ([26:13](#)):

I feel like I read this in the report. Is there a wage gap too as part of the issue that workers involved in manufacturing aren't getting paid enough? Do we know what the disincentives are for folks to be in manufacturing these days?

Bob Sternfels ([26:31](#)):

I could highlight a couple. There is, on this real time basis, a growing wage gap. So there is an aspect across all manufacturing aspects of the appropriate wage gap. There's also a modernization in actual work methods that yield manufacturing relative to some others, less flexible, and therefore less exciting. And yet some very implementable, easy technologies create more flexibility in manufacturing as you then think about what the role could actually offer. But there's also a search gap issue. And the understanding of where available jobs are relative to folks who are actually interested in them to fill some of the great ones you were talking about. There's just a basic market clearing mechanism that doesn't exist.

David McCormick ([27:20](#)):

I want to come back this semiconductors, but just wanted to give you an opportunity, because you had touched on the work with the task force. If folks don't know, there's a House Armed Services Committee task force that looked at these issues. And I just wanted to get a sense of, if we're talking about where there's a disconnect on what the solutions are, maybe this gives us an idea of where there's consensus. This is a bipartisan task force. What kinds of things did that task force come up with versus what the Reagan task force came up with?

Chrissy Houlahan ([28:02](#)):

In preparation for this, I did a little bar chart about this and I would encourage you guys to read the reports of both Reagan and also the HASC special task force on supply chains, because they're actually quite short and condensed. And what I would say the similarities are, is of course they were both focused on the importance of supply chains for national security. I would say one of the bigger differences is that of course the task force on armed services was all members of Congress, bipartisanly members of Congress who were on the Armed Services Committee. And as Marillyn mentioned, the Reagan Task Force was a combination of industry and government and, and education as well.

Chrissy Houlahan ([28:40](#)):

As I mentioned, initially, the armed services task force was focused on a specific kind of output like chips or rare earth elements, or energetics, or that kind of thing. And what we quickly realized is we weren't going to get a whole lot of places if we didn't also acknowledge the importance of workforce development, which I think obviously the Reagan Task Forces did too. The Reagan Task Force talks... As Marillyn talked about capital investment and the importance of that aspect. To some degree, we hit on that on the armed services one, but Reagan Task Force report is much more industry focused in its relationship with education and government than ours was.

Chrissy Houlahan ([29:23](#)):

The armed services task force had six different recommendations, and our specific focus was to make sure they were actionable in the NDAA of this year. And so they were all put forward into the NDAA of this year, which hopefully will pass in the next week or two, we can hope. And that would be the similarities and differences. I'm trying to make sure that I hit everything. I think the bottom line is both concluded that supply chains should be a priority that we're not paying enough attention to. And that it is a fundamental national security issue if we don't. And I'm happy to talk to people about the HASC Task Force after that if you'd like.

Dr. Nadia Schadlow ([30:02](#)):

Another point on workforce development is that it's very state-driven, right? I mean, you have states that have different approaches to retraining programs and looking at some disconnects between the federal level, at the big strategic level, and then what actually happens at the state level. And I'm just wondering... I think maybe Roger will kill me for asking him to do another report, but it might be interesting as a sidebar to look at successful retraining programs of the past, right? Too often, we tend to want to start from scratch, tend to want... So we've been struggling with this issue to various degrees for at least 15 years, in a sense, right? So looking at actually what worked in the past in terms of retraining and what didn't, and the best way to communicate opportunities to Bob's point, might be worthwhile.

David McCormick ([30:51](#)):

Well, one of the recommendations in this report is to allow employers to compete for federal funding that's normally reserved for colleges, for skills training. I mean, is that politically viable? Does that feel like low hanging fruit? Is that something that Congress might be able to get behind on a bipartisan front.

Dr. Nadia Schadlow ([31:12](#)):

I don't think so, but Chrissy...

Chrissy Houlahan ([31:14](#)):

So I, I think... I think that there are some already existing programs in my district as an example, that look like a hybrid version of what you're talking about. I don't know that I would go so far as to say that industry should necessarily be able to access Pell Grant as an example, but maybe. But I think what's happening in my district is some of the tech and vocational training and community colleges are working side by side with industry and coordinating with over individual specific people, upskilling and skilling those individual and specific people with the idea that they are on a path to head into industry with that specific company. And without what I would share is, I mentioned that I am an engineer, but I was an engineer under an ROTC scholarship.

Chrissy Houlahan ([32:00](#)):

And I was told when I was 17 years old, that my scholarship would be conditioned on the fact that I would be an industrial engineer because the needs of the military were that we needed industrial engineers. And that seems like a logical path that we should have replicated more than just an Air Force ROTC. We know what the needs are that we have in our workforces. We just need to match them up with the people who are interested in how having work. And so why wouldn't we identify the kinds of skills that we need at a vocational or community college level for industry and have pair programs like that are happening in our community.

David McCormick ([32:35](#)):

I wanted to... Sorry, go ahead. Did you want say something?

Dr. Nadia Schadlow ([32:37](#)):

Oh, no, I wanted to go back to-

David McCormick ([32:40](#)):

I wanted to jump to the semiconductor rare-earths questions. USICA and the CHIPS Act, both of them are languishing. There's a competing house measure. It seems like this is all stalled out. And so it makes me think of two questions. One, how viable is increasing public investment in the private sector? And the way that this report talks about, is that something politically feasible. And then on the flip side, what does \$50 billion get you in terms of investing in semiconductors? Is that enough seed money to reshore... I wish I had that graph, but I think we know that Taiwan and China dominate in semiconductors. So does 50 billion get you there? Bob, what do you think?

Bob Sternfels ([33:48](#)):

Maybe I won't comment as much on what's politically viable, but I've spent my career working up and down the semiconductor of chain, and have some sense. 50 billion doesn't get you very far. One in facility cost 20 billion to be at a leading edge node. Just to put some in contrast. And the quantum, at least in some of the research that we did said, to get US back to competitive parity across the front end side of semiconductors, which is the fab, which is where most of the technology, as opposed to assembly and test is about 3 trillion. So we're 60X what we're talking at the 50 level.

Bob Sternfels ([34:28](#)):

Now that is only in the manufacturing point. And Nadia, you raised this question earlier, when you start to think about the broader supply chain, there's some really interesting both technology and stretch strategic questions. The importance of front end manufacturing, Sure. But what about semiconductor

equipment? And you start to think about things like lithography, and it's the equipment that actually goes into the factories which actually has often strategic pinch points. So that widens the scope, the 3 trillion was just in the manufacturing side of things.

Bob Sternfels ([35:01](#)):

You then think about back to the small and medium size enterprise notion that we talked about in the atrophying of the 70,000 SMEs over the last 20 years, there's an enormous number of small and medium size enterprise that provides the componentry into the supply chains for the equipment to make this happen. That investment's not considered in that equation. So my big push would be the numbers we are talking about when we actually think about how to truly come back to leading edge competitiveness around this are a quantum. But I would also say that we shouldn't say that government funding solves all that.

Bob Sternfels ([35:41](#)):

In my mind, I think we have to think about many different aspects, and I'm not knocking the role of government funding. I think it's a critical perhaps catalyst to get going, but how do you turn that into a multiplier? And so how do you turn it into a multiplier when, if you're sitting in the shoes of leading a private business, these are decade long investment risks. So back to this uncertainty, we need to create an environment that gives some clarity. If I'm going to make a bet that's going to be a 10-year payback, do I have certainty around the regulatory environment? Regulatory environment here. And maybe with the US working with allies, regulatory environment internationally.

Bob Sternfels ([36:19](#)):

Is there the appropriate incentive to make my own both R and D and capital investments? And I actually think this notion that Marillyn talked about, could there be some alternate financing vehicles at the intersection of public and private? I don't know if this notion of a sovereign wealth fund, but when you go around the world and you look at places like Singapore or Norway, et cetera, they've been incredibly successful on this to catalyze targeted investment. And so there might be some creative solutions in it that allow us to get to a number far larger, but doesn't rely on a specific number through a bill to, to do this, I think if we're going to try and solve it.

David McCormick ([36:57](#)):

Dr. Schadlow.

Dr. Nadia Schadlow ([36:58](#)):

Well, I think further complicating the point about private capital and the role is that a lot is still flowing into China, right? Some 50% of R and D centers in China. Over the years I have been financed by US and non-Chinese companies in China. Most recently, what I found really surprising was a Wall Street Journal report which noted did that from 2017 to 2020, there were 58 deals made into the Chinese semiconductor space by Western and US companies. This is over the past four years when we purportedly have this bipartisan consensus on China. So that's a problem that's worth billions of dollars of deals. So the private capital is there, this is not a new observation, but getting Wall Street to recognize the long term downside of these kinds of investments is still a struggle.

David McCormick ([37:51](#)):

What's your sense of why Congress has wrapped around the axle on these questions, and can't hasn't been able to move forward word to reconcile the these competing approaches and...

Chrissy Houlahan ([38:05](#)):

I can only speak for myself. I'm candidly frustrated because I feel like that the Senate put forward a good piece of legislation in USICA. It was in this day and age, pretty remarkably bipartisan in terms of, I think it had 68 votes in the Senate. I serve on one of the committees of jurisdiction for our versions of that in the foreign affairs space. I know that there are bits and pieces of it across other parts of the house. And I know that we're trying to pass versions or parts of the USICA through the house, through those committees of jurisdiction. But this is an example of a case where I get frustrated as an individual member that why wouldn't we move forward on something that at least starts progress?

Chrissy Houlahan ([38:51](#)):

But I'm sort of a pragmatic. Incrementalist, I guess, is a bad word. But it's where I am, where it should have rather to have something than to have nothing. So I don't have any comments of it. And I think there is a lot of fiefdom stuff, not surprisingly in Congress. And a lot of not invented here stuff as well.

David McCormick ([39:10](#)):

So something that we haven't talked about is The White House. In this lane we've seen a number of executive orders from The White House. Has the leadership been strong enough? Is that what's needed here to break up the log jam? Is there anything that The White House has put out there through executive orders that's been effective? Whether it be... I guess, they're geared primarily towards supply chain studies at this point, and maybe not necessarily towards acting on kinks in the hose. Or have they?

Dr. Nadia Schadlow ([39:55](#)):

There was, as you noted, the hundred day supply chain review, which came out. It does provide a good background in four different sectors, but mainly background. The recommendations tend to be more government spending, but tends to tend to not address the point made earlier about how to best spend that money incentives... How to actually spend the money in the most effective way to do that. And it also highlights problems like the talent problems, but the solution side of how you get there, I think, is still a problem. In addition, many have pointed out, and I agree that pouring money into the department of commerce to lead this effort is potentially problematic because there really isn't the workforce there that has the skillset to implement these pretty complicated programs.

Bob Sternfels ([40:48](#)):

The only thing I might add on this though, is everyone needs to do their part back back to, I don't know if it's incrementalism, or let's take the wins where we can, however you want to frame it. We'd been as a country on a long term decline in terms of our both CapEx and R and D spend in manufacturing over the last 20 years. In 2020, that turned around in the, in the private sector. In advance of this moving from studying to funds flowing or new policies. And I think if there is some reward in the markets for companies that are actually now starting to take bold investments about reimagining supply chains, doubling down on R and D, et cetera, this could work in concert with each other, and it doesn't need to be sequential of government moves, then private sector moves. Can we get both moving in parallel at the same time?

Chrissy Houlahan ([41:43](#)):

If I could comment on that, one of the other commonalities between the two reports was, on one report, the reimagining of the Defense Production Act and what could we do to be more creative with that tool that we have that I understand needs to be renewed in another few years. On the other report, it was making it more useful rather than re-imagining it. And I think we do have some real power in that particular tool to do exactly what you're saying in terms of incentivizing business and thinking more broadly. I read at one point, in the report, the Reagan one that there was work done. I believe it was in the Vietnam era to spread out aluminum manufacturing across the country and make it less vulnerable to attacks to infrastructure. And I think we can do those kinds of things, be creative with the way that we use the DPA. Be happy to try and hear your ideas on that too.

David McCormick ([42:37](#)):

So I wanted to turn... We've got a little less than 10 minutes left. I wanted to turn to some of the questions and want to note, somebody's asking to put a finer point on something that we talked about. Is there a bipartisan consensus that we need an industrial policy that involves direct investment of federal funds into the formation of manufacturing capabilities? Is the ideological contention over industrial policy over or not? Anybody want to weigh in on that one?

Chrissy Houlahan ([43:05](#)):

I don't know quite what the question is asked or getting after. Can you clarify it a little bit.

David McCormick ([43:13](#)):

I think, is there a split over whether there needs to be direct investment in federal funds? I think that's what's being asked.

Chrissy Houlahan ([43:23](#)):

We had a conversation about this at the breakfast table where we were talking about... I feel very much that the government should be able to invest in and be part of the process of being participating with for profit companies. But I think that the government should also benefit from that as well. And I think that there's this struggle where there's kind of this feeling that we should be open handed in giving money for research and development and giving money for innovation and then not profiting or benefiting from it. And I'd like to see that there be some sort of... We were talking about venture capital funds in the US Air Force that's blue-skying it, but why wouldn't we have something like that right now when we're trying to find innovation and we're not able to do it, we're not able to generate it? I'm just speaking, again, speaking for myself. I don't know that my more progressive colleagues would be down for that. But that's where my perspective is.

David McCormick ([44:12](#)):

I wonder if there's some ideological issues on both sides. Is this counter to free market principles? If we were to invest in... If we're propping up some segment through public investment, at what point does that end, or does that go on and on? Is that a continuous thing?

Bob Sternfels ([44:35](#)):

The only part I'm not going to opine on is the bipartisan support or not. But back to free market principles, I think one of the things that we're learning, whether it's on things like this notion of resilience versus efficiency. Or externalities that we hadn't considered in our objective function and

enterprise like climate that free markets are... We're taking a broader definition of externalities. And one of the definitions, at least in my mind comes back to this notion of supply chain resilience. I don't think this is working against free markets at all. It's coming back to say, "Look, we're going to have increasing shocks going forward. And we don't know what those next set of shocks are going to be. Is the economic system that we're building robust enough to deal with these particular shocks?" I think that's entirely consistent with a free market system.

Dr. Nadia Schadlow ([45:32](#)):

I don't think there's bipartisan support, especially on the Republican side. There's still a lot of debate about whether or not you want to pick national champions and make investments in specific companies. I agree on--

David McCormick ([45:47](#)):

Actually, there's a question here that says, are you concerned that the creation of defense manufacturing system that creates national champions in the same manner as China would remove the competitive advantage that markets provide? So that's a sentiment out there. Let's--

Dr. Nadia Schadlow ([46:01](#)):

To the congresswoman's point I just want to add, I think it's an interesting point about government. I mean, government investments, if you do make them, traditionally, it's all been about you just get the loss, essentially. You don't actually get the gain, the for profit gain. And some have written... There's a great book called the Entrepreneurial State, never met the author, but plugging it. And she talks about actually a different model in which government would actually get some of the profits, not just take the fall.

Bob Sternfels ([46:29](#)):

One notion back to this national champion, I might frame, as we think about it is, do we want national champions or do we want championship teams? And what I do wonder about in our system is, is our issue not picking a national champion, but rather we don't work very well across the silos? And a lot of the solutions, particularly as we think about manufacturing and defense are going to need multiple players to collaborate. And so it may be a notion of, could we rethink the model to create championship teams as opposed to national champions?

David McCormick ([47:07](#)):

I just want to give a couple other folks who have submitted questions. Brian McGrath of the Fairbridge Group asked for the panel. Are there creative policy proposals that will help with the physical mobility of the workforce? We have chocolate factory jobs in Pennsylvania and unemployed and underemployed elsewhere, how do we use federal and state tax codes for instance, to bring them together?

Chrissy Houlahan ([47:31](#)):

I understand the question, but I'm going to answer it in a different way. One of the geographic challenges of my part of Pennsylvania is transportation and infrastructure is an issue. We have jobs in places where people cannot get to them. So in the case of the Morgan truck company which does the chassis, it's in a part of my district that doesn't have public transportation readily available. In the case of the chocolate manufacturing similarly, not very easily able to get there. So we've worked on all kinds of

creative solutions to try to bust people or to try to connect as an example, one of those businesses with veterans from the VA, that's in my community as well.

Chrissy Houlahan ([48:13](#)):

So I don't know that we necessarily need to have mass migrations across the nation to try and match jobs with people. We just need to have better infrastructure that is able to get people to those jobs. And also to play my democratic music as well. We need to make sure that we have childcare, and we need to make sure that we have people who can leave their house safely because they don't feel like they're going to die of COVID. And so there's a lot of work that needs to be done before you start moving people from Ohio to Pennsylvania.

David McCormick ([48:44](#)):

Anybody else want to way in?

Bob Sternfels ([48:46](#)):

No.

David McCormick ([48:47](#)):

And then there's say another question about semiconductor parts. We'd been talking about semiconductors reassuring it here in the states. How can the US... It says, there's a report by Boston Consulting Group that suggests more than 90% of advanced semiconductor parts that America uses, including to build the F-35, are built exclusively by the Taiwanese semiconductor manufacturer, TSMC. How can the US incentivize foreign semiconductor manufacturers to move their plants to the United States, I guess, as opposed to watering the ground and having them grow here naturally?

Bob Sternfels ([49:29](#)):

[crosstalk 00:49:29]. Go ahead.

Dr. Nadia Schadlow ([49:30](#)):

No, yeah. Go ahead, Bob. And we're trying to do that now.

Bob Sternfels ([49:33](#)):

Absolutely. And if you do look at some of the big announcements, there have been players like Samsung... Which by the way, back to our 50 billion, Samsung as one company has announced 250 billion in capital spend for semiconductors. There's a large chunk of that, that actually should be in the US. And if you look at the recent and announcements around new facilities just outside of Austin, this is one of them. So clearly there... Sorry to get into the kind of language, but when we talk about parts as opposed to fabs, and the TSMCs and the Samsungs will build entire facilities.

Bob Sternfels ([50:07](#)):

There are equipment players that are people like Applied Materials, which is a US company, ASML, which is a Dutch company. And actually encouraging the development of semiconductor equipment which runs the factories is a real leverage point for us that we could actually think to revitalize and figure out where are the next generation equipment manufacturers? Because if we have dominance in the equipment manufacturers, they're the ones who actually put the facilities together.

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David McCormick ([50:33](#)):

All right. I'm going to let that be the last word, and thank all of the questions that we got from the audience. Thank you to the audience for being here. Thank you to the panelists for discussing this today. All right. Round for applause.

Bob Sternfels ([50:48](#)):

Thank you.

Chrissy Houlahan ([50:49](#)):

Thank you.

Marillyn Hewson ([50:49](#)):

Thank you.