U.S. Senator Maria Cantwell

Opening Statement at U.S. Senate Committee on Commerce, Science, and Transportation Hearing on Supply Chain Resiliency

Witnesses: Dr. Gary Gereffi, Founding Director of the Duke Global Value Chains Center; Dr. James Lewis, Senior Vice President and Director, Strategic Technologies Program, Center for Strategic and International Studies; Dr. Dario Gil, Senior Vice President and Director, IBM Research; Mr. William "Lex" Taylor III, Chairman of the Board and Chief Executive Officer, Taylor Group; Mr. Richard Aboulafia, Vice President of Analysis, Teal Group; Mr. John Miller, Senior Vice President of Policy and General Counsel, Information Technology Industry Council

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[AUDIO] [VIDEO]

Cantwell: Commerce, Science, and Transportation will come to order. Thank you all for being here. We have a distinguished group of witnesses today to talk about a very important issue to us in the United States of America; that is the state and competitiveness of our supply chain, and its resiliency for the future. Each one of our witnesses, the distinguished Dr. Gary Gereffi, Dr. James Lewis, Mr. Richard Aboulafia, Dr. Dario Gil, Mr. William Taylor, and Mr. John Miller, all offer a variety of perspectives on the importance of this issue. I can say for me in the state of Washington, aviation supply chain is something we're very proud of. More than 150,000 people work in that supply chain that continue to innovate and create new products that, as Mr. Aboulafia says in his testimony, that's where the innovation is happening in the supply chain.

That is why we just recently passed the now called U.S. Innovation and Competitiveness Act, USICA, that we are trying to negotiate with our House colleagues, because we believe in making an increased investment in the supply chain. So I'm sure we're going to hear today about the challenges we face in the semiconductor sector, an aspect of our supply chain, which we saw great shifts over the last several decades, and the consequence is obviously less jobs in the United States of America. So needless to say, I think Congress has caught on that the supply chain is key to our economic strategy, and that a robust supply chain in the United States of America means we're going to continue to have robust employment in the United States of America. Without the resiliency of the supply chain, it could be complicated, given the experience of COVID, as to whether products can be delivered in a timely fashion, whether our services and security could be impacted, and just how important it is that we have a strategy for a global economy in which a variety of products and services can be delivered in a much more competitive fashion than in the past. That means the investments that the Department of Commerce should make are important.

USICA took several steps to contribute to the resiliency of the supply chain, incentivize domestic semiconductor manufacturing, and establish a Supply Chain Resiliency and Response

Office within the Department of Commerce. It makes tremendous investment in the Department of Commerce, National Science Foundation, Department of Energy to support R&D and translating inventions into products creating regional technology hubs and expanding the workforce and our innovation economy. And these important facilities, like our Pacific Northwest National Laboratory, can help with spin-offs of new technology that become critical parts of our R&D and domestic supply chain. Also, our NIST funded manufacturing extension programs can help in working with developing resiliency and supply chain strategies so that we continue to have not just potential customers, and supply chain connectors, but understanding, again, how we can best innovate and stay competitive.

I look forward to hearing the testimony from our witnesses today. I feel very excited to have this distinguished group in front of us and I hope our colleagues will all learn from the information here. And what I would say, Senator Wicker, I'm not sure 20 years ago, if we would've had the same hearing. I see our colleague Senator Young here, the key sponsor behind what was then the Endless Frontiers Act. I'm not sure we would have been having this same conversation but the world has changed, supply chains have changed and are changing, and I look forward to how the United States stays very competitive here. Thank you.

Q&A With Witnesses

[AUDIO] [VIDEO]

Cantwell: Thank you, Mr. Miller. And again, thank you to all the panelists. I feel like this subject – while you have all been studying it – is, as I said, a new day on supply chain analysis and impact as far as what we should be doing. And you all gave us some good ideas on that. Some differences: Dr. Lewis, you are unabashed, "industrial policy, let's go." Definitely more analysis, Dr. Draghi, and very direct things in the last two witnesses about what Commerce should be doing specifically.

So I want to pose my question, I think, Mr. Aboulafia to you, and Mr. Taylor, and then just see whoever else wants to jump in. But this notion that we try to get at with USICA – somewhat about the supply chain – but really just about innovation. So if you're right, Mr. Aboulafia, which I think you are right, that if there's 2 million people working in the United States in aerospace or the sector of semiconductors, and yet the innovation is happening at Mr. Taylor's level, or Mr. Taylor is seeing the world and knowing what needs to happen…how do we really get that input and that strategic involvement? How do they get their views on the table? So we now have two proposals, strengthening tech sectors and strengthening tech hubs…but how, if say, you have big parent companies who are just chasing the market, whether it's Intel chasing semiconductor markets or Boeing chasing international aviation markets, but yet the supply chain knows the next level of innovation that has to happen? How is it that we are going to drive the resources and innovation down to that level so that they can access that? So Mr. Aboulafia?

Aboulafia: Yes, thank you for your question, Madam Chair. And it's true, I'm afraid the bigger companies at the top tend to drive the conversations and tend to have a bit more of a direct pipeline to the R&D centers within the federal government. Now, the good news is that thanks to some of the mega-mergers we saw back over the past 15 or 20 years, a lot of the supply chain is concentrated in companies such as Raytheon Technologies, General Electric, Honeywell, and many others that had sort of become their own effective economic and business powerhouses. I would like to see greater coordination between these first tier contractors. But how do you get the smaller companies involved, the ones that are also quite critical to both innovation and production? And whether that happens through the auspices of trade groups, such as the Aerospace Industries Association, or perhaps maybe just standing up other committees and organizations, within, say, NASA's Commercial aerospace directorate, I think it's absolutely essential. And I think there's greater recognition in the government of the importance of the supplier companies. You know, one of the great saving aspects of this crisis has been the accelerated payment program by DoD, which has basically called for faster transfer of dollars from the primes to the suppliers. So I think that kind of greater awareness of the importance of the supply chain, but it's a very good question under what auspices that happens and how that happens. But I think it's essential.

Cantwell: Dr. Lewis, you called for a greater role…in commerce playing, as you said, a more predictive role. What do you think we should do here? If the supply chain is identifying the innovation, but they're like Mr. Taylor, they're running their business every day. They know what needs to happen, but they're not in control of the supply chain.

Lewis: Thank you Chair Cantwell. I focus on the high tech sector and on some of the innovation startups we have now spreading around the country. That's a really good sign. It used to be Silicon Valley. It's still Silicon Valley, New York and Boston. But you're seeing research hubs spring up around the country, and that's where the bill could make a useful contribution. We have a strong innovation system. It's based on research universities, venture capital and then entrepreneurs. So those three elements are what produces innovation. They're really good at it. The there's one dilemma and this is a hard one, they follow the market…they all want to be unicorns…the next billion dollar company, or the next Amazon. In talking to friends at the defense innovation unit, which is DoD's effort to connect to the startup community….we're doing great on software. We may be lagging a little behind on hardware. And that's one of the things the bill points out, the bill focuses on. So how do we get greater connectivity between the national innovation system and the industry? With my colleague here, Mr. Taylor, I'd agree, let the market do it, and then look for the places where the market isn't working. The market isn't working in a few places, and the bill does a good job of fixing that. But we can we can use both federal and private sector to make this work.

Cantwell: Mr. Taylor?

Taylor: What I can relate it to…we are a small business, and therefore, the overhead structure that it takes for innovative work, it gets limited. You're focusing on what you have to do on

materials and labor, and the supply chain to produce the product and get it to the market. So we use the research university system, and many small businesses use that resource. I'm thinking my distinguished panelist from Duke University, I'm not sure what they have there. At Mississippi State, which is just 30 minutes from us, there are some rules and regulations that are governed by the state of Mississippi. The Institute of Higher Learning IHL has a mandate that if an entity – say Taylor wants to invest some capital in research of something for product innovation – engaging the university… if faculty are involved…immediately, if there's patentability coming from that research. Because faculty involved, it stays at the university level. You know, I'm not sure about that – if an industry is willing to make the financial investment and lose the pattern downside of that. So there's some play in the hand of partnering with the university system. But that's something that could be improved in Mississippi.

Cantwell: Thank you. That's why I've held up this Rose Holeman model, because they don't claim anything on the patent, and researchers – companies like you – just go right to them and say, "help us solve this problem." And if that was more regional in various parts of the country, it would just be a ready-made asset.

Q&A With Witnesses, Part 2

[AUDIO] [VIDEO]

Cantwell: So I have a couple of questions. I'm not sure if we're going to see other members here, but I wanted to cover a couple of things. Dr. Gereffi, you talked about the research of this particular issue, too. And our witnesses and the questions from our colleagues, you can definitely see, everybody's advocating for more expertise, and definitely a larger role for Commerce. So how do we get that expertise given that any one of these things… as Mr. Aboulafia said, "maybe you should have a dedicated supply chain focus just on aviation," and obviously, we're heading that way on semiconductors. I could make the case we should have had a better analysis on aluminum, given where we are with the aluminum sector and the shift that's happening. So what do we need to do if we're going to say we want a larger federal role? What is it we need to do to have the research about these sectors? Again, if a lot of the innovation or the awareness about the next phase of innovation is at the very base level of the supply chain.

Gereffi: Thank you, Senator Cantwell. I think in the past, when we wanted to focus on specific industries, we had programs like national industry centers, things like the Sloan Foundation Industry Studies program, like I mentioned in my testimony, but I think to get universities involved, we end up having to take a more interdisciplinary approach. And so I think one of the critical issues is trying to find some of the key industry areas that are cutting edge, where the universities can supplement, and that's where I think your National Science Foundation technology initiative, the Technology Directorate, could be a key, because NSF does tie into universities in a very direct way. And I think it has to connect also to those industrial clusters,

where the industries are located in particular parts of the country. So a combination of NSF, which is going to tie into applied funding, the multidisciplinarity that comes from industry clusters, and then linking that across different industries that are specialized, I think, is probably one of the key ways to go for university.

Cantwell: I see you nodding, Dr. Gil, you agree with that?

Gil: I very much agree with that. I mean, in the context of serving in the National Science Board and the evolution that we see and the potential of the technology and innovation translation new Directorate –of bringing the best of the university, what historically would have been done in centers, but imagining a new catalyst where we can bring universities and industry at all scales together through these NSF sponsor centers, I think would be a unique model that would allow us to address some of these concerns.

Cantwell: Well, it certainly could be more translational and it certainly could be more informational back up the chain. I don't mean to use that word so intermittent, but you know, I believe the world is "flat," so when you're talking about getting somebody over at Commerce to understand what's happening in Mr. Taylor's business, or what's happening in aviation, or what's happening in semiconductors, it's not that there aren't people at NIST, but when you want to call a shot and say, "Oh, well, we need a specific R&D supply chain effort for aviation or semiconductors," that's somebody farther up at the Department of Commerce making that decision.

Gereffi: And just one further comment. I think that when we look at the existing technology areas in the U.S. that are well developed, like Seattle with aerospace, or Silicon Valley, or Austin with IT, or Boston 128, in all of those cases, we have well established universities that are connected with private companies. But one thing that's happening now is we have a whole new set of technologies that is transforming the cutting edge of research. So artificial intelligence, quantum computing, all of the different areas that are coming out of the digital revolution. So I think that's where we need to bring universities back into the equation because what worked 5, 10, 15 years ago, is changing very fast now. And so that to me is the real challenge. How do we have that discussion between industry and universities and government - taking these next generation technologies and bringing them into the picture?

Cantwell: Well, that's where the hub and the center come together. And that's, you know, in maybe a new fashion but, Dr. Lewis, did you have a comment on that?

Lewis: Thank you, Chair Cantwell. Commerce used to have a technology administration. Technology used to be one of their central missions, and they got rid of it some time ago. So one of the things to think about is, you were talking about NIST isn't a policy agency - they do great work, but they don't do policy. So if you're going to rebuild that capability at Commerce, senior level, further up the chain, we might want to look at what Commerce has in place; a lot of talent there, a lot of strength, but not focused on the technology mission in a way it might have been 10 years ago.

Cantwell: Thank you. I like that suggestion, because I do think that this is changing so fast, you have to develop expertise. Mr. Aboulafia, there is, you know, this effort on thermal plastics that I've heard about. I've heard about it because obviously on the supply chain, getting material for airplanes that don't have material flaws in them that you have to start over, you know, is a big deal. So thermoplastics give you that ability. But the most I've heard about this research is that it's over in Europe, and there are companies like Boeing that are participating. I've also heard of it from companies in Spokane, who are saying, "I'm doing this and we need to do more of this." But how do we get the focus on the core technologies that need to happen in aerospace if these are just voices in the supply chain? Or if say, for example, Europe has had associations just because they're Europe, or Max Planck Institutes where everybody always works together. What is it that we need to do to identify the next generation technology that seems to be already there in the supply chain, but the supply chain are just small individuals trying to compete? What do we need to do?

Aboulafia: Well, I suppose it's encouraging - the very fact, Madam Chair, that you're hearing about this technology indicates that there are some equipments and technologies that are coming to public view, to your view. You know, when it comes to materials, that's actually a very good example of the kind of thing that I think should be accelerated, because it can be brought to market a bit quicker. But despite the emphasis on creating these materials in the supply chain, it's up to the primes to specify them at the end of the day, you know, so bigger companies like Excel or someone like that could create these advanced materials or some of the smaller companies, but ultimately, it comes down to the primes. And this is one point where I guess I'll slightly reverse myself here. Well, I think it's up to the primes to identify what technologies they're looking to bring into next generation platforms; the materials, the various advanced control systems via avionics, or whatever else, they might be the best source to say, "Well, this is something we would like to see on our next generation jetliner or next generation business jet or combat aircraft." In the case of thermoplastics, you know, there's a lot of work going on in the interiors field. So that might be the sort of intermediate end user; people who create interiors, and want to bring some new capabilities to market. But in general, these are exactly the sort of technologies that I think could migrate from basic to a more advanced applied level of R&D. And yes, it is sort of noteworthy that a lot of other companies or a lot of other countries are engaging in this research. One thing about this is that being in the Netherlands and Belgium and other places, these are effectively neutral aviation powers. If it's taking place in France or Britain or Germany, it's probably not addressable as much to U.S. contractors, and I think that's important to remember and a reason I think, for the U.S. to have that greater capability in identifying these technologies and well, working with U.S. R&D programs and getting them to market.

Cantwell: Thank you.

Final Question and Closing Statement

[AUDIO] [VIDEO]

Cantwell: I just have one last question. We talked about, you know, some of the aspects on the adversarial side. What about on the ally side? Dr. Gereffi, you've written about this as a way from your research to prioritize things. What should we be doing to think about building alliances on supply chains? How should we be looking at that as the government and who in the government should be doing that?

Gereffi: A lot of people on the panel have already mentioned, for example, in semiconductors, how important the alliances are between the U.S. companies, Samsung, TSMC, I think getting the international companies investing in the U.S., as we now hope to see, is going to be very important. I think, from the government point of view, I think the industry associations that are working with government agencies are probably a good place to begin to encourage more of that collaboration. So I think there's collaboration among the big companies, and then there's also that collaboration between lead firms and their first tier smaller suppliers. And perhaps that's an area that is been less well-developed, that we don't really see very far down those supply chains, beyond the big companies. And that's maybe where these industries can get better rooted in the U.S. and we can start to have that small business, or medium-sized business development, and that collaboration is very important. I think it's probably private sector led. Oftentimes, it's going to be those top companies that are encouraging the small companies, but U.S. government as well with its policies can be encouraging the kind of investment at local levels that would help that.

Cantwell: Anybody else on the ally front? Dr. Lewis or Mr. Miller?

Lewis: Sure, thank you. The Tech and Trade Council is an important step. The Europeans really wanted it, it was their idea. And so they are looking for ways to partner with us, that's good. They're worried about what they're afraid might be trade nationalism in the U.S., so 'Buy America' is something that they react to. We should be worried about some of their tech governance initiatives, I think they say it's not aimed at American companies, but some days it sure looks that way. But I was just at a meeting with one of the European commissioners on this, and there's a real desire to build partnership. There's not as much appreciation in Europe of the risk of China, but it is growing, as we heard. And so we're entering a long period of dialogue that moves us in the right direction.

Cantwell: Mr. Miller?

Miller: Thank you, I will echo both the point about investment and actually attracting investment from partners and allies to the U.S. as one thing for sure, as well as the U.S.-E.U. Trade and Technology Council. You know, one of the promising features of that, as Dr. Lewis indicated, is that, and I think it's already been announced that one of the things they're specifically forming a working group on is semiconductor and other strategic supply chains. And then just the final note on the international front on this topic, you know, for the past two or three years now there's been kind of the Prague principles and focus on 5g security, which has

a significant number of supply chain components, and again, brings together several different U.S. partners and allies to focus on the security aspects of the supply chain issue.

Cantwell: Thank you, Mr. Taylor?

Taylor: I'll say one other item. It sort of goes back to what Senator Scott said, but this investment in international businesses coming here and establishing a footprint in our own American industries, I would ask the Commerce Department to take a strong look at revitalizing or re-supporting – whatever the word might be – the permitting process. It's long, it's laborious, it's debilitating, and it really hinders Greenfield production, Greenfield building growth for expansions, or just additional lines for the processes, the antiquated ways that we all have to go through for a permit to get that innovation started, get that factory started or addition to a factory store. So I'd ask that that be looked at.

Cantwell: Thank you. Thank you very much. Did you have one last thing you want to say on this point, Mr. Gil?

Gil: Just 30 seconds, that when we grow our investments like is being done with this piece of legislation, it really serves as a beacon for our allies to desire to partner with us much more strongly.

Cantwell: Thank you. I think that is a good summation to USICA and one of the reasons why we did this. This has been a great deep dive on the supply chain, thank you all very much. Thank you for your expertise and for your knowledge about this. A lot of great information has come out of it. I definitely believe, as Mr. Aboulafia says, that we have to look at the supply chain in a more partnership way. When I reflect back about what our discussion has been here, I keep thinking, what if we would have had a better partnership on that years ago? Would we be in the same situation we're in now with the semiconductor industry? So we are trying to have more illumination about these sectors and how important they are, not just from their technology perspective, but also what they mean for jobs and for our economy, and certainly what they mean for national security issues. So thank you all very much.

This hearing record will remain open for two weeks until July 29. Any Senator can submit questions for the record if they do so by July 22. We ask you to respond so that we can fulfill that record by the 29th of July. And with that, this concludes our hearing. Thanks. Thanks very much again.