Fireside Chat

Moderator:

Oren Liebermann, Pentagon Correspondent, CNN

Speakers:

Hon. Heidi Shyu, U.S. Under Secretary of Defense for Research and Engineering

Rep. Rob Wittman, Vice Chairman, House Armed Services Committee

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Oren Liebermann:

How's it going? Thanks for joining us today. My name is Oren Liebermann. I'm joined here by Under Secretary of Defense for Research and Engineering Heidi Shyu and Congressman Rob Wittman, Vice Chair of the House Armed Services Committee for discussion on the National Security Innovation Base, research, and engineering. And I just told them in the green room that even if I don't ask intelligent questions, I expect intelligent answers. This is a fascinating time to have this discussion, especially given a major modernization effort from China that we're seeing lessons about the future of warfare. We're learning in Ukraine, questions, for example, about hypersonic technologies, and on top of all of that, Congressman, we are facing a potential government shutdown in 48 hours or less, and I want to start on that point. From the perspective of the innovation base, we have had multiple CRs, multiple threats of shutdowns, and this is becoming par for the course for better or for worse, and especially for small companies in this space, companies that don't have multi-billion-dollar budgets to survive these, it adds a level of uncertainty. And I'll point out that the Reagan Institute's report card gave DOD a D in customer clarity, and on the question of sufficient and stable funding, an F minus, didn't know that existed.

Secretary Shyu, what effect does that have on the research and engineering space, especially these smaller companies that need to know, “Hey, funding is there, and there is a stable process here to play out.”

Hon. Heidi Shyu:
It is absolutely a huge impact on an annual basis. I can just give you an example. Well, several examples if you allow me. Okay, we're about ready to award APFIT to -- this is Accelerated Fielding and Procurement of Innovative Technology. This is 10 million and above to help small companies to bridge low-rate initial production. We'll be sitting there waiting for awards, waiting to give these small companies. I can tell these small company has come up with incredible innovations. One company came up with an optical clock that does not depend upon rare earth materials from China. Pretty fabulous. So this is a prototype that DARPA developed and DARPA miniaturized it. We just would like to get them going on lower initial production, but I can't. So for small businesses in particular, it's a huge impact. And the other thing is I'm about ready to -- since last fall, I've been waiting to award one company to do an additive manufacturing solid rocket motor, right? We've been collaborating with the Navy. It could greatly shorten our bottleneck in terms of missiles, right? Because we can't deliver enough missiles because the bottleneck is solid rocket motors. I'm about ready to give an award, I've been collaborating very closely with the Navy, but I have no money right now. So it's hurry up and wait. It's a lot of anxiety for small companies and startups.

Oren Liebermann:
Have you seen companies have to essentially either turn away or go under waiting on, waiting on a check?

Hon. Heidi Shyu:
Well, I can tell you there are companies that tell me, “by March timeframe, if we don't get a budget, I'm going to have to basically start turning off the lights.” It's painful, but what's frustrating to me is this is becoming an annual process. Exactly like you said. We're hampering ourselves. We're giving China a six month lead every single year, right? That's not where I want to be in the race.

Oren Liebermann:
It's not a winning strategy.

Hon. Heidi Shyu:
It's not a winning strategy.

Oren Liebermann:
Congressman, you get the follow up, and this is my first question to you. It is a loaded question, so choose your words carefully: How do you break this cycle of CRs, and is this going to become par for the course for the US when it's a closely divided Congress?
Rep. Rob Wittman:
Well, listen, over the past 18 years, unfortunately, it's been par for the course. If you were to figure out a way not to run a business or to run a government, continuing resolutions would be your way not to run it. Listen, I think it has to be some fundamental change. I've been advocating now for almost a dozen years to say, let's make sure it's members of Congress that are held accountable. First of all is, I think we need to get a budget done, which is the top line number, by April 15th of every year. If you don't, members of Congress should not get a paycheck. We can't take your pay away, but we can hold it until you get the job done. This archaic process of August recess. Here's the craziness. We leave town for five weeks, knowing when we get back, there are 13 or 14 days.

We have to get the appropriations bills done before the end of the year. And especially with many of them, not even having gone through committee. We know what the end result is going to be, another CR. So why don't we do this? And I talked to the speaker about that this year. Why don't we make sure that we stay in town in August? No recess, no vacation until you get the job done. You know what? I bet you you'd find a lot of things would get done as people were waiting to get out of town. So there has to be a fundamental change in how we operate. You can't keep doing the same thing and expecting a different outcome. I think if you start to place a responsibility on members of Congress and said, by the way, you want to leave town, you want to go back to the district, especially in an election year, you've got to earn it.

If you want to make sure that you earn your paycheck, you've got to make sure you get things done on time. Those things to me are fundamental. And here's another perverse incentive that happens when we come to the end of the fiscal year and we face a shutdown. If a shutdown occurs, guess what happens? We tell a federal workforce, some are essential, some are not. By the way, those that are essential go to work, and we're not going to give you a paycheck. What business would do that? But guess who gets paid during the shutdown? Members of Congress. Just reverse the table, say, listen, we're going to continue to have the federal workforce come into work. You're going to continue to get paid. Members of Congress do not get a paycheck until government reopens. I mean, you just have to change the incentives there. The process is broken. There's no focus or accountability on members of Congress, which is where it should be to make the process work.

Hon. Heidi Shyu:
Just for the record, I love this man.
Oren Liebermann:
Speaking of motivation to pass a budget, before coming to the Pentagon I reported in
Jerusalem, the Israeli government automatically collapses if you don't pass a budget and
goes to elections, it's one heck of a good motivator for a budget. I do want to ask one big
picture question on this. I asked you specifically, Secretary, about the effects it has on the
small companies, but does it also slow down or grind to a halt the bigger efforts, efforts
like Replicator, and how?

Hon. Heidi Shyu:
Absolutely, it affects everything that we do. Even the programs that we are in
production, we're supposed to be ramping up because you can't spend more money than
what you had last year authorized. So that means companies that were supposed to be
ramping up, well, you can't. So if you are short in deliveries of quantities, i.e. munitions,
well guess what? It would be nice to actually not have a CR so they can actually ramp up
production, right? So you're right. The impacts are broad, and it's across the board.

Oren Liebermann:
There was one other point in the Reagan Institute's Report Card that I wanted to ask
about. It was the talent base where we got a, I want to make sure I get this right, a D,
which was a worse grade than before, but last year it was a D-plus. So this is not a DOD
problem. It is a national problem, the ability to attract a talent base in this space.
Congressman, the first question to you here, you would think in an era of rovers on
Mars, the web telescope, it would not be hard to attract people into this space that then
come to work in the critical technology areas. And yet that's exactly what we're seeing.
Why? And is this fixable?

Rep. Rob Wittman:
I think it is fixable. I think what needs to happen is there needs to be a constant demand
signal. I think people need to understand too, how do I take the things that I develop --
that is the small companies that are the innovators and creators, how do they take what
they develop and figure out, “is there a place in the Pentagon for this?” I was just talking
to Secretary Shyu about what DARPA has done, and essentially create a windshield for
people that may have a software package or may have an app that they can say, well, I
think this has an application, but I'm not quite sure. How do I test it? Or how do I put it
into a framework to understand? Is there an opportunity there for me? So creating those
windshields are going to be key. We're going to be working on that this year as part of
NDAA, and then making sure too that they understand what are the things that the
Pentagon is looking for.
And the good news is some of those things are starting to bubble up. I just spoke recently at the National Security Conference, there in Massachusetts, there at the Massachusetts Institute of Technology and Harvard. Students are coming there, and they’re keenly interested. The participation in this program doubled this past year because those students that are the innovators and creators, the ones that are developing ideas at Lincoln Labs and other places are saying, “Hey, I want to get in this space.” Because they see what the threats are, and they have some incredibly creative and innovative ideas. They just want to know how do I navigate it? How do I get it to a point where somebody can give me that opportunity? How do I make sure that I have that conduit to a place like the Defense Innovation Unit and Doug Beck? How do I make sure that I get those ideas before Dr. Rathje there at OSC to say, “Hey, how do we leverage resources?” I mean, it is those kinds of things that are incredibly important. And when those creators and innovators see that there are those pathways there, the Department of Defense is interested in that creation and innovation, and there are opportunities for them, I think more and more folks will gravitate to that, because they see the gravity of the challenges we face from China and others.

Oren Liebermann:
Secretary Shyu, I'm just curious, you meet with a lot of these companies, many of them. What do you hear when it comes to the talent base? Is there a shortage of workers who can fill these spaces?

Hon. Heidi Shyu:
Well, I think in general, if you look at the number of STEM students that we have, we're short nationally. So it's not just within DOD that we have a problem, companies are also short of the talent base that we can draw from. We're competing from the same pool of talent. So one of my other responsibilities is really in the area of basic research and helping out, how to nurture students and increase the number of students going into STEM. So one of the things that I did this year, we literally, I spent a week visiting three different universities, that are all in Texas, and I really gained a much better understanding when talking to the professors, the deans and the presidents and the chancellors, what are the struggles that these families have? What we ended up doing, for example, I said, well, we have a lot of internship programs across DOD.

They said, well, we can't afford to let our students let our sons and daughters be gone for six weeks because they support the family. The incomes of those families are so low, they need extra there. So I said, okay, now I understand the problem. Here's what I can do to
change the internship program. So we did that. I said, how about for the very first week you go to whichever DOD lab to learn what project you're on, get to meet the people, rest of the five weeks you can work from home. And that was a huge benefit to some of the students. So that's one thing we've done. Just understanding the problems out there to try to help the students to stay in the STEM fields.

Oren Liebermann:
I will say that these are incremental steps for what feels like a generational issue.

Hon. Heidi Shyu:
So the other thing that we're trying to do is certainly we're trying to increase the number of SMART scholarships that we have in the last two years. Last two and a half years, we have awarded 1,400 STEM scholarships, and the STEM scholarships help the students. It's a fee for service. I pay for four years to college, you owe me four years of time with the DOD laboratory, right? If I pay for your PhD, it's fee for service for a number of years. I can tell you here's how it helped. I actually met a number of these smart scholarship students. One guy who was briefing me, he said, “I'm a benefit from one of your SMART scholarships. I deployed to Iraq and Afghanistan, and after I finished my deployment, I wanted to go for an advanced degree. I didn't have the financial means.” So he applied for a SMART scholarship. He got in, we paid for his master's and paid for his PhD. Now he is doing underwater sonar research at Naval Underwater Warfare Center and did an outstanding presentation. But this is the power of having SMART scholarships so we can grow a talent pool.

Oren Liebermann:
I know it's a bit easy to forget in the current news environment with two wars, Haiti, and a list of other stories, but China remains the pacing challenge for the United States. 2018 and 2022 National Defense Strategies made that abundantly clear. A broader question to you, Secretary, and then a more specific one to you, Congressman, how do you fit into this space? It's not just a question of building more ships than China. And then specifically, how does the research and engineering, the innovation base fit into the question, the mission perhaps, of AUKUS?

Hon. Heidi Shyu:
Yeah. Oh, great questions. So I will say three weeks into my job, literally SecDef asked me to meet with him, and literally we spent time sitting--
And you said, “what took so long?”

Hon. Heidi Shyu:
That's right. He's been a busy guy. But literally we sat down. He wanted me to kind of lay out a hypersonics strategy. So we did. We laid out the hypersonic strategy, where Russia is, where China is, where we are, where North Korea is, gave him the whole scope. And that evening at 5:00 PM DepSecDef called me up and said, “SecDef wants to meet with you at 8:00 AM tomorrow morning, hear our counter-hypersonic strategies.” “Got it, ma'am.” Okay, that's agile. Okay. Next morning I showed up. I had one piece of paper, a few dots for me to talk about, and I laid out the entire strategy of how we have to look at the entire kill web and how to counter it. He loved it, and he said, I like the concept, 30 minute meeting, lay it out. This is the power of what we've done from that.

Well, I thought I already laid it out, but it was verbal. He wanted a piece of paper. So the next two months, I cleared over 300 people across different technology disciplines, DOD, IC, FFRDCs, UARCs, COCOMs, right? All together, lock them up for three days, classified level, to lay out this as a whole strategy we're laying out, and you're not to come out of this room until I like your strategy. I'll throw food underneath the door, but you, day three, I am coming back here and we're going to lay out exactly the tasks to counter the PRC. Okay. From that, we laid it out. We went back to SecDef, gave him the briefing. Okay, so now remember I walked in end of July, so August was his request. We went back to him in, well, his schedule slipped until December, but in November of ‘21, DepSecDef literally told me, and Kate told me, you have to come brief for the budget, alright?

Because the books are locking and I don't want to slip a year. So I went in and say, I'm not going to give you details because of multiple levels of very high classification, but I will come in and talk. So I went in, I did a verbal DMAG, Defense Management Action Group, four-star meeting. Yeah, verbal, okay. I talked about here's the threat, here's how I'm going to counter, and here's a portfolio. I want money in this area and this area and this area. And they went around the room. This is less than five minutes, which I took and went around a room to every service, every COCOM, every Under Secretary, thumbs up. I got the money, and then I had – it's a two-year PPBE process, so I had to hurry up and twiddle my thumbs and wait until I get the ‘23 budget. Okay.

Oren Liebermann:
Thank you for looking at him for that one.
Rep. Rob Wittman:
That's right, that's right.

Hon. Heidi Shyu:
And after the CR, we got the money. We started sprinting. Okay, but this is the process we do to ourselves. I don't have current year money. You have a great idea, wait two years and then we'll get your funding. We think sprinting, literally the initial delivery, a capability against that is this month. Highly classified, I can't tell you because China will find them, but it's --

Rep. Rob Wittman:
We'll use email. Or to build on what Secretary Shyu said, it's also about changing how we do things, and there are several things that have happened here recently that I think really move us in the right direction. One, Congress, through the appropriations process, put a process in called APFIT, which is accelerating procurement. We're going to put some dollars there to make sure that developmental ideas that are in phase one SBIRs now get to scale, so they get to phase three. So we get those companies that are small, that have great ideas into production, the things that are operationalized. Another thing too is RDER, rapid development. How do we make sure that we're doing those things quickly? How do we change the process? As we know through the years, the whole process, both in Congress and in the Pentagon has been slow, but it's also been focused on exquisite systems.

How do we build big systems, big ships and those sorts of things. We have to change, and we are in the process of doing that change. We just had Admiral Aquilino, Dr. Ratner, General LaCamera with us on a posture hearing. Our focus needs to be not just exquisite systems, but how do we get capability and capacity quickly? How do we get expendable platforms? We see that happening in Ukraine. Those are incredibly effective. How do we get credible platforms that are also great conduits to use technology that leverage what we can do quickly? We can increase the risk calculus for China. All those things are incredibly important. You talk about the AUKUS agreement, the most important part of AUKUS is not pillar one, which is the building of nuclear submarines. The most important part of that is pillar two, which allows us to collaborate with Australia and the UK in things like artificial intelligence, quantum computing, and technology, and how do we do more to make sure we can transfer technology quickly?

Actually, we treat Canada better than we do Australia and how we transfer technology there. So we have to do a better job in sharing technology. We have to elevate the level of
trust so that we can actually have these partnerships that utilize what countries do in unison. We will not be able to, by ourselves as the United States, be able to fund and spin up this technology by ourselves. When we have countries like Japan, who's doubling their defense budget in the next five years, we have the Philippines who are doing many, many things to work with us. We have Australia that are leveraging resources to work with us. That's how we are able to deter and in turn, if necessary defeat China.

Hon. Heidi Shyu:
Can I add to that? Thank you so much for giving my speech. I would say a part of AUKUS -- I just want to let you know when I first came on board, I realized Australia has lot to provide in terms of information and as well as technology. I created a special access umbrella between our two countries so we can share the most sensitive information. So we are in very close cahoots with them. And the other thing, just to let you know, to expand upon AUKUS pillar two -- which I forgot to answer your question, I'm sorry -- but the important piece there is literally in addition to all these technologies we're collaborating with a tri-lat on, one of the things that we're doing, which RDER will help, is literally from sea floor up to the stratosphere. How can we command and control and integrate all of our unmanned systems from sea floor to the stratosphere?

Oren Liebermann:
I want to come back to a point you made on exquisite versus attritable, and there's an example in my mind that I'm thinking of when the West first got its hand, this is years ago, decades ago, on a MiG-21, they were amazed at how simple it was. Gas-and-go US airplanes, to put it mildly, are complex, and DOD buys complex systems. Do you believe DOD can make that transition from focusing on exquisite systems that are all too often over budget and behind schedule to attritable systems that we're seeing have a tremendous effect in Ukraine?

Rep. Rob Wittman:
Listen, I think absolutely they can. I think we have to. I think it's a necessity. I just met earlier today with Secretary Kendall. They are all in, the Joint Program Office understands what we need to do with F-35, but how we enable the F-35 platform as we get the software, right? How we enable that to work in that highly contested environment will be to add capability for that aircraft with attritable platforms. And what's happening today is we are seeing companies that are software-centric that are getting into that space. Here's what needs to happen in the Pentagon. The Pentagon for years has been all about hardware, and listen, through the years we needed to do that, but in today's world, it's about software. How does the Pentagon become a software-
centric organization? Great examples are Palantir. Palantir just won a major contract, TITAN, with the Army because they show that they can get things done.

That goes to show that those software-centric organizations are going to be a big player in this space going forward. The Pentagon has to be able to stay not just with technology, but ahead of technology. It's software that's going to inform what we can do, and then you'll build hardware around software. If you look at the companies that are in the CCA space, they are, many of them, software companies that figure out very quickly how to make hardware, off the shelf hardware, fit into what they can do with software. And remember, software changes almost on a daily basis. So if we use things like digital twin, we can learn on the go. We can keep up with what happens with our adversaries literally on a minute by minute, hour by hour basis.

Oren Liebermann:
I have two more questions and I'm determined to get them in here. This is an OSC question. In laying out the investment strategy for the Office of Strategic Capital, Defense Secretary Lloyd Austin wrote, “in contrast to global competitors that coerce and control investors and companies, the US has an unmatched ability to invite and empower those who see to contribute to our shared security.” I'm curious about in this specific space, what you need OSC for. It seems like it would be an advantage to have something like a -- got to find the right word here -- the Chinese model of guidance funds where you can say, we're putting money there. Instead of the OSC mission, which is we're going to use public dollars to attract private investment. If you need to move fast, it seems you're at a disadvantage in this specific space. No?

Hon. Heidi Shyu:
No. I would say, OSC was based upon a couple of things I experienced. I would say a couple of companies, one of them which is in this building, in this room actually, came to me and talked about how they really needed some capital to scale up into production. It would be great if I could help the small company. This small company would rather not have venture capital owning them, but I don't have like $10 million I can just throw out and provide it to them. Another company came and talked about how they're developing state-of-the-art Switch, which was eye-watering. They decided to fab it in Sweden, and the foundry was bought out by China, and now I can't buy that component because China owns the foundry. And he mentioned that he would love to be able to onshore the capability here and requires $100 million. I said, I don't have $100 million to give you.
So, Office of Strategic Capital, if we could provide guaranteed loans to companies like that, it will be fantastic. Let's say we spend $5 million and Treasury provides $95 million. We have a huge leverage and they can pay the loan back as function of time, right? This will really boost up our capabilities, benefits a lot of small companies, so all for Office of Strategic Capital. Jason's has worked and his team has worked unbelievably hard this year working with all four committees, try to get them to understand what we're trying to accomplish. And I think we're almost at the goal line, right? As soon as there's a budget, sir.

Rep. Rob Wittman:
That's right, yes. We will get there in the next several days. Listen, I think the two models are very different, but I think the OSC model is the way to go. Remember, the Chinese model is a command-and-control model. It is myopic, and listen, they take risks, but when they fail, they fail big. What we are able to do here is make a lot of bets. So if we fail, we fail on small scale, we move on, we do something else. Last year we were able to do some things in the NDAA that really gave flexibility to OSC, gave them the ability to utilize, to the maximum extent possible, public resources with private resources to make sure we're sending the proper demand signal to take some reasonable risk in certain areas. The only way that you make a quantum leap of progress forward is to take some risks. And we want to do that.

And we want to make sure too, we're sending the demand signal. So the private equity markets, the venture capital markets go, Hey, OSC is saying that this is where things are going. And remember, OSC's decisions too are informed by what's happening in the overall scale within the Pentagon. So when Secretary Shyu says, “Hey, these are the places we need to go.” Or when Admiral Aquilino says, “Hey, in my 1302 requirements, these are the things we need to do,” then those things can be operationalized. And you look at where capital wants to flow. All they need is the demand signal. OSC does that much better than the Chinese model. And remember too, I want us to take risk, and we need to take a lot of risks. Some of those bets are going to pay off, some are not. If we fail, let's fail fast, but let's learn from that failure. The advantage we have over the Chinese is they make a lot of bets, but they make really big bets. And when they fail and they do, they fail big.

Oren Liebermann:
Congressman, I said I would ask two more questions and this is my second one. It's an easy one. But it's from my space. Is the supplemental, Ukraine supplemental, going to pass?
Rep. Rob Wittman:
Well, the appropriations bills I think will pass. I think they'll be on the floor, it sounds like, on Friday. As far as the supplemental, I think that's yet to be determined out in the future. Probably have something before us when we get back off of the two week break that we have coming up. But I'm very confident that the appropriations bills will get done hopefully by the end of the week. There's a lot of back and forth about the 72-hour rule, but it sounds like, and I don't have anything official, but it sounds like that it may be on the floor in the House on Friday to vote for final passage on the six appropriations bills.

Oren Liebermann:
See, Secretary, that was pretty optimistic. Thank you for your time everybody. Our time here is up.

Rep. Rob Wittman:
Thank you.

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