

Technology, Innovation, Procurement

With Michèle Flournoy, Eric Fanning, and Raj Shah,
Moderated by Kiran Sridhar

KIRAN SRIDHAR: Let's begin with Secretary Michèle Flournoy.

MICHÈLE FLOURNOY: I wanted to focus my brief comments on realistic changes we can make in the near term to accelerate and expand the adoption of innovative technologies and concepts. I think many of the longer-term reforms, from increasing investment in recapitalization to fundamentally reforming the budget process, are really important and need to be pursued. But I want to focus on the fact that we, as Americans and the DoD, have a very time-urgent problem that demands that we focus on urgent steps that can be taken now to produce better operational outcomes in the next five years. And that is focused on ensuring that the United States, with its allies, can actually deter Chinese aggression against Taiwan or in the South or East China seas.

In this context, it's really not about choosing between legacy systems or new innovative capabilities but rather figuring out how to marry the best of the two to get new outcomes. There are three key elements in my view here. The first is to identify the most critical operational problems we have to solve to strengthen deterrence, whether it's increasing the resilience of our own command, control, communications, computers, intelligence, surveillance, and reconnaissance [C4ISR] systems and degrading China's. Or whether it's a matter of enhancing the speed and quality of our decision making relative to Beijing or increasing mass through human-machine teaming or teaming manned and unmanned platforms and so forth. But we also need to look at new ways of combining capabilities that we already have on hand or readily

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available in new ways to support new operational concepts. Think of the example that [former deputy secretary of defense] Bob Work has written about [regarding] putting navy munitions on air force long-range bombers that can hold Chinese naval assets at risk from outside harm's way. So it's an Apollo 13 problem. Shake everything out from our kit bag, look at what we have, and be creative about combining them in new ways to create different outcomes.

At the same time, we need to, as Mike [Brown] has talked about, identify commercial technologies that can meaningfully enhance the performance of our existing platforms and weapons systems and disrupt that of our enemies. And then, we need to fast-track their procurement and integration into the force at scale. All of this requires a different approach than we're seeing in the Pentagon, and it's very consistent with the hedge and fast-follower strategies that Mike just described.

But first and foremost, this has to be the highest priority for the secretary and the deputy secretary of defense, not just in strategy documents but in how they actually spend their time and in what they hold other senior leaders accountable for. I recently had a meeting with a very senior military leader in the Pentagon who told me he's spending four to five hours a day on Ukraine. My question is, who is spending that kind of time driving the train on the problem of deterring China as an urgent near-term problem? We need a similar wartime sense of urgency to actually deter and prevent conflict between two nuclear-armed powers in Asia. And so, what would that look like? It would mean bringing together INDOPACOM, PACFLT, and so forth to identify what are those critical operational needs that we absolutely need to address to be able to deter successfully. We need to bring service leaders in to propose creative solutions using existing or fast-emerging capabilities, rebuilding and pre-positioning stocks of critical munitions, and leveraging our unique innovation ecosystem to really offer up mature commercial capabilities and solutions that can complement these other capabilities. We also need to structure competitions within the department to develop new operational concepts to solve those hard problems and then fold those concepts and capabilities into experiments and exercises.

I applaud the department's creation of the RDER [Rapid Defense Experimentation Reserve] program, but it's on a twenty-four-month cycle, meaning if I get an exercise approved or an experiment approved today, I have to wait as much as two years, maybe, until it happens. That's not fast enough. And all of this needs to be done by a strategy-informed reveal or conceal policy to get the maximum deterrent effect.

Of course, we need to build congressional support for urgent efforts to shore up deterrence. And we do need to draw lessons from prior efforts, and I thought Jackie [Schneider]'s paper was excellent. The notion of identifying and empowering champions and policy entrepreneurs to drive the change, developing compelling narratives that win over support within the services and on the Hill, and then, most importantly, from my experience in business, is realigning incentive structures to change behavior. We've got to train, incentivize, and reward a new cadre or subcadre of acquisition professionals who are truly experts in rapid commercial technology procurement. We also need to train and reward service PEOs [program executive offices] to actually embrace disruption and be rewarded for embracing disruption of their own programs if it gets us to the ultimate operational outcome we're seeking faster.

SRIDHAR: Next is former secretary of the army Eric Fanning.

ERIC FANNING: I'm going to try and distill my remarks into three buckets: Congress, the industrial base, and the Pentagon.

First, and it was mentioned earlier, Congress is an integral part of whether we're going to succeed or fail on this. And I recognize we have a very highly regarded former HASC [House Armed Services Committee] chair [Mac Thornberry] with us. This isn't directed at anybody. [Former secretary of defense] Bob Gates used to say that nobody suffers in a bureaucracy more than a bureaucrat. And you could probably say that about Congress and members of Congress, particularly defense authorizers, so thank you for everything you've done.

We've already talked about how long the PPBE process is—the budgeting process and the planning process—but then the disruptions of not getting a budget on time are hugely disruptive to the Department of Defense. We all know that. They're disruptive to industry, but more importantly, over time, and this is a theme James [Cunningham] has in his paper about how cumulative effects over time just grow. It has distorted the contours of the industrial base as well. Years and years and years of this type of budgeting and inconsistency make it hard for industry to plan. That's one of the questions here: How do we rebuild the industrial base? Congress participating in regular order to get clear, consistent, dependable demand signals out there to the industrial base would be a big step in getting there. They also need to be a part of this “divest to invest” strategy. One of the questions—I think we have all landed on the same page here—is that it's not either-or in terms of what we have now

and what's in the future. It's not even just a combination of those things. It's figuring out how to modernize what we have, how to combine it with new things that we've got and in the best order, as Michèle said. And Congress has to be a part of that and makes it very hard for the department to make trade-offs to succeed in that way.

As for industry, I don't really call it the "defense industrial base" anymore, and I think this room probably understands how it's changed better than most. But we really have to address that the industrial base supporting the Pentagon is different from [how] it was when the PPBE program process was set up.

There is the traditional defense industrial base. I can say that those companies don't like being called traditional. They think that they're very cutting edge in a lot that they do. And, in fact, they are. They build exquisite things that, for the most part, nobody else is going to build. Elon Musk isn't going to launch companies to build aircraft carriers and other types of things. So that's a part of the industrial base supporting the Pentagon that we need to support and maintain and find ways to move faster.

But as this panel has addressed, there are new parts to the industrial base. And the word "commercial" gets bandied about. It's like any other word the Pentagon uses—we kill it very quickly. But commercial for me means two things: it means off-the-shelf technology, [or] technology developed for something that's not defensive but has a defense application if we think creatively about it, or it can be modified in some way for a defense application. We talk a lot about that. We have to recognize that part of the industrial base supports the Pentagon. But there's another aspect to commercial as well, and those are companies that want to do business to support defense specifically but are set up on a commercial model—not a traditional defense model where R&D expenses are government funded or largely government funded—but are really using private capital from start to finish to figure out something. And that's something that I don't think the building understands and increasingly is not prepared to deal with as it becomes more of a force in the industrial base that's supporting the Department of Defense. There is so much money out there that wants to support our national security. But the investment cycle is shorter than the return cycle that we see with the process that we have now. So we've got to get at that because the department—and I was guilty of this, as many of us probably were—thinks that if they want \$700 million or something, they get \$700 million, and they give it to someone, and they build it. They don't think about the fact that a successful

program of that size just brings a bigger round of investment behind it that we should be leveraging for our nation's security.

And then, finally, in the industrial base part, I don't think it's just enough to try and get new entrants and find ways for them to work their way into the Department of Defense. We want to get as many of these traditional companies and new companies involved in answering this question about old versus new and modernization. Bring them in earlier on requirements, and in fact, call it something prerequisite and get them involved in helping us figure out the disruption. Is there something we can do differently with something we have? Or to answer one of the questions in our section, will new technology replace something because we find a new way to do something? We want all of that expertise at hand on these problems, and that means bringing people in earlier to a process that is faster.

And then, finally, the Pentagon. But I'm going to offer some thoughts that are a little bit contradictory. First, on the planning process, I think that we should be exploring ideas where one size doesn't fit all. There are plenty of things that fit through a PPBE [planning, programming, budgeting, and execution] process that could be improved that give some confidence to Congress and taxpayers that the Pentagon has thought through how much something is going to cost over the long run to build and maintain. But there are plenty of things, as Mike [Brown] has pointed out, that we can't take advantage of if we don't move in a much faster and more iterative cycle. And that may require a different process for whatever part of the Pentagon acquisition procurement budget is iterating faster, where we now are not. When I say we, I mean the Department of Defense that is generating the technology that we're using, but is not finding ways to incorporate that with what's coming from outside. Keith [Alexander] said earlier that 90 percent of the internet is outside of the government. The same is true of technology. And so we have to think differently and it may require a different process, particularly when you think about the political dysfunction that we're facing in the United States right now, to take advantage of that and at speed.

And then secondly, this is where the contradiction is. You saw two organizational maps earlier today. Chris [Kirchhoff] put one up, the innovation map. And then there was one earlier that was the OSD [Office of the Secretary of Defense] organizational chart. The DoD organizational chart's an enormously elaborate, bureaucratic enterprise. We all know that. And of the leaders, particularly when they don't have a whole lot of time to create band-aids. And we need to do an assessment of these organizations we've set

up, which of them are band-aids, which of them fixed the problem, or which of them are just continuing to be a bridge past the problem, figure out what the root cause of the problem was, and try and consolidate a little bit more. Because, and this has come up earlier, there are always more authorities available to us, to those in the Department of Defense, those outside, than we avail ourselves of. It's easier for a bureaucracy to create a new organization and then just repeat on a smaller scale what they were trying to fix by not recognizing the authorities. So the contradictory part is I say that we should look for ways to streamline. And with that, Michèle mentioned it is training people to use the authorities that they have to take risks to train leaders on how to understand risk and reward it in the right ways. But I do agree with Mike's idea that we should have an organization or a separate entity that is specifically focused on these types of things that are moving at a faster pace or some way to pull those things together and give them more lift. Because to Jackie's paper, culture, personality, and all of that can become a huge impediment. And the flip side of that is you've got to find a place to park something where it can scale and get larger entity echelon buy-in in order for it to move forward.

SRIDHAR: Next is former Defense Innovation Unit director Raj Shah.

RAJ SHAH: A wise DC leader once said budget is policy and strategy is budget. So, I think focusing on budget is really, really important. I want to talk about three things. One is the need for scale in areas that we can get leverage. Two, ideas on how we might organize to get after many of the problems that were described today. And thirdly, I wanted to end with a couple of things that give me some hope and encouragement in where we are today.

So from a scale standpoint, I think James's paper showed us quite clearly: we just need more stuff. We need more mass to deter China and to do a "four-plus-one" strategy. And to me, there are three ways we can get after that. One is topline growth, so we can acquire more hardware and platforms. We've seen how difficult that is in the current political climate. So maybe that'll happen, maybe not. I don't think we can bet our strategy on that. Two is a better mix of buying traditional industrial base-type of equipment versus more commercially oriented types of technologies. A lot of the work that Mike [Brown] did at DIU is relevant here. Additionally I would argue that the DoD should not build its own software programs that are commercially available, like the Defense Travel System [DTS]. We should just buy that capability commercially. That approach would save a lot of money. There are certainly

challenges around scaling that approach, but I think most people would agree that it would result in better outcomes.

The third area, which I hear less about and I wanted to spend a little bit of time on, is how do we make our current defense systems more efficient and effective by leveraging commercial techniques and capabilities? Let me give one specific example. The F-35 has eight million lines of code in the jet and about twenty-four million lines of code in its ground systems. Anybody that's an engineer will tell you measuring lines of code is actually a terrible way to measure things. But I tried to figure out what percentage of the total cost of the F-35 program is somewhat software oriented. And it's not really broken out, but based on some analysis, I think 25 to 35 percent of that total cost is software. And I would argue that the best software engineers and the talent in our nation are not at the offices and companies that build that capability.

So if we want to do more with less money, buy more F-35s, have better ships, more ships, we need to find ways to improve the software component of our core weapons systems. Instead of saying, "I'm going to have hardware and then bolt on some really great software," have a software-first sort of development. And I think the way to do that, which I'll talk about in a minute, is we really need to deepen some of this partnership between the commercial organizations that know how to build that. And that's not going to, say, Google, and saying, "Build me a fighter jet," but how do we get those engineers working on this problem set?

So how do we organize around this? And how do we address this national security issue, our dependency on commercial technology?

Allow me to take one small detour in my comments, because I wanted to address some things that Admiral [Mike] Mullen and Ambassador [Michael] McFaul, and Michael O'Hanlon said, which is talking a lot about China and deterring China. One of the things that I think we need to recognize is that China's still our largest trading partner and growing. And it represents huge technology dependencies between the two countries. TSMC [Taiwan Semiconductor Manufacturing Company] is of course the most visible dependency, but it goes far deeper than that to include whole classes of chips made in mainland China. And so we need to think about how our strategy is going to be different in relation to China from what we did in the Cold War and even what we would do with Russia today from a deterrence standpoint.

So what else can we do about this from an organization standpoint, with \$600 billion in private capital going to technology every year? In Chris [Kirchhoff]'s paper, he outlines it: Apple has enough cash on its book today to buy the entire traditional industrial base.

The centers of gravity have changed. The Department of Defense is no longer the monopsony buyer. And so, it needs to have a different approach to encouraging our best engineers and talent to work on it. So I think many of the ideas that Mike [Brown] had talked about: buying fast and reforming the budget process are part of it. The other parts to think about as we are replenishing our more traditional stocks of weapons, are there new or lower-cost manufacturing techniques? If you go to the Ford factory today, they don't build cars the way they built them in the seventies. There is automation. There is software. And my understanding is that our current approach to building more of core weapons stocks like Javelins and HIMARs will use the same processes we did in the seventies. I think there's a modernization opportunity for us here.

Finally, in my last section, what is the good news and progress to date?

I think the Ukraine situation has completely changed the attitude in the technology world, particularly in places like in Silicon Valley. I've never seen, in the ten years I've been working on this problem set, as many young entrepreneurs and brilliant technologists that want to solve these problems and who believe in the defense of democracy as a real calling. They are mission oriented, and yes, while they want to make some money, they are driven to work on things that are really important, and photo sharing doesn't meet that mark anymore. So I believe there's a really unique opportunity. Congress, DoD, and the policy ecosystem are slow to recognize this important trend—in fact, this whole conference is emblematic of that. We have an incredible range of leaders here around the table. I think folks really do want reform. The PPBE [Planning, Programming, Budgeting, and Execution] Reform Commission is another great example of focus on improving our processes.

My final point is that private capital is starting to move into area. The statistic more relevant is that about ten years ago, around a hundred million [dollars] was going into real defense-oriented types of companies. Last year it was \$8 billion. Yet there's still a lot more available—there was \$600 billion in total VC investment last year. There is a true and growing belief among investors that there's a real market in defense. I'll close with my observation that there is real, positive momentum, and now's the time to seize and act. Thank you.

SRIDHAR: Comments? Questions?

JOSEPH H. FELTER: Thank you. Amazing papers. This question is directed to Mike Brown. I think your paper was more of a manifesto, and it was an

awesome one. I just want to get after one question. Let's say, just hypothetically, that you were currently serving the Pentagon, maybe in Ellen Lord's former role [as the under secretary of defense for acquisition and sustainment]. What might be some specific reforms you would look to implement—whether they're organizational or structural? What would be on your agenda in that role to help operationalize this robust strategy that you laid out?

MIKE BROWN: Well, I think it's already clear from some of the discussion here, applying some of the lessons that we have in Ukraine. So we need to be able to improve the munitions. We don't have a credible deterrence for China because we can't back up our talk. So we're getting after that. Ukraine's showing some of that. We have to clearly invest in the industrial base. We've got to improve the munitions' capability. Nadia [Schadlow] did some great work at the Hudson Institute to talk about that specifically. And then Eric's idea, we have to figure out how to go faster. If we can't change the whole system at the Pentagon, which you probably couldn't do in one person's term, we need an alternative system to get the hedge strategy in place and the fast-follower strategy in place. I think that's doable with leadership.

NADIA SCHADLOW: I just have a really quick comment on Raj's point about software. An interesting construct, which I wish I had come up with, is the DoD as a "creator" of software or a "consumer." DoD seems to think that it's fundamentally ambivalent, right? I think it should mainly be a consumer but it thinks of itself as a creator. That differentiation was coined by my colleagues Bryan Clark and Dan Patt.

BROWN: I think it's not that simple. I think we have to actually be doing both because there's a way to be a producer of software where you're going in and making small changes to existing systems, so you don't have to rely on a third party to do it. But the idea of creating software factories, so we don't need to rely on outside software is ridiculous. And Raj made that point effectively.

SHAH: My view is this, I don't actually care who does it. They just need to value software. Right now, the department knows how to buy physical things, but they don't value software and the energy that goes into it.

ROGER ZAKHEIM: I want to go back to the discussion about Congress, and I think Jackie hit on this in the beginning. And yes, CRs [continuing

resolutions] and that is a problem of strategic importance, and that rests with Congress. But much of the other discussion around Congress, I think, needs to be revisited or at least balanced out by what good Congress does. And here, as a former staffer on an authorizing committee, you know where I stand. But let me just make a couple of points. I haven't heard anybody refute this, nor do people make this point. If you look at the authorization appropriations bill, 95 percent of what's in there, the Department of Defense requested. The biggest earmark is the Department of Defense coming in and putting it at the foot of the authorizers and appropriators. On top of that, whatever they don't get into that budget request, the unfunded requests come in from those same elements in the Department of Defense. So just as we're thinking about this reform to the four [PPBE] commissioners here and everybody else, recognize that much of the violence is coming from that five-sided building.

And then, when Congress does weigh in, it's not all bridges to nowhere. Let's give a few examples. Chairman [Mac] Thornberry is too modest to probably talk about the things he championed and got in there. But here are a couple that are top of mind. We mentioned the Cyber[space] Solarium Commission and counter-IEDs [improvised explosive devices] in the wars in Iraq and Afghanistan, and the MRAPs [mine-resistant ambush protected vehicles], that was Congress pushing them through. Talk about autonomy, the UAVs [unmanned aerial vehicles] that came from Congress, much to the chagrin of the leaders of the air force at the time. The European Deterrence Initiative, the Pacific Deterrence Initiative, and the list goes on and on. So the Department of Defense and the military benefit from annual authorizations and appropriations because it gives an opportunity to get stuff in. Remember the unelected problem here, perhaps, is not the appropriations staffer, but the bigger problem is the unelected bureaucracy of the Department of Defense.