

UPDATE OF THE STATE OF THE DEPARTMENT OF DEFENSE ACQUISITION SYSTEM

HEARING

BEFORE THE

SUBCOMMITTEE ON READINESS AND
MANAGEMENT SUPPORT

OF THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

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UPDATE OF THE STATE OF THE DEPARTMENT OF DEFENSE ACQUISITION SYSTEM

WEDNESDAY, MARCH 20, 2024

UNITED STATES SENATE,
SUBCOMMITTEE ON READINESS AND
MANAGEMENT SUPPORT,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2 p.m. in room SR-222, Russell Senate Office Building, Senator Mazie Hirono (Chair of the Subcommittee) presiding.

Committee Members present: Hirono, Blumenthal, Kaine, Kelly, and Sullivan.

OPENING STATEMENT OF SENATOR MAZIE HIRONO

Senator HIRONO. [Technical issues.]—system. I would say it is a continuing challenge. Our witnesses today include Mr. Peter Levine—who I understand used to work for the Subcommittee so he should know where we are; he will be here soon—a Senior Fellow at the Institute for Defense Analyses. Mr. Moshe Schwartz, Senior Fellow for Acquisition Policy at the National Defense Industrial Association, and Dr. William Greenwalt, Nonresident Senior Fellow at the American Enterprise Institute.

As Chair of this Subcommittee one area of focus is ensuring that our servicemembers get the equipment they need to defend our Nation. That means delivering weapons systems, supporting technologies and the necessary services in a timely manner to ensure our warfighters have the best possible capabilities. It also means ensuring acquisitions remain on time and on budget—on budget—to steward our taxpayer dollars.

Since the 2016 National Defense Authorization Act (NDAA), Congress has enacted nearly 500—repeating, 500—acquisition provisions to provide flexibility and options to the Department to tailor acquisition pathways to best fit the types of systems being acquired. Department of Defense's (DOD's) six acquisition pathways—urgent capability, middle tier, major capability, software, defense business systems, and services—these are all acquisition pathways. Together these pathways comprise the Adaptive Acquisition Framework.

A recent reform included adding the middle tier of acquisition pathway, I mentioned that, in the 2016 NDAA to more rapidly prototype and field major defense weapons systems. This important change is already bearing fruit in some cases. For example, the Space Force is currently using middle tier acquisition to quickly

procure and launch low-earth orbit satellites on time and on budget.

However, the Defense Department's acquisition process still remains on the Government Accountability Office's (GAO's) High Risk List, which includes programs and operations that are vulnerable to fraud, waste, abuse, mismanagement, or in need of transformation. The GAO recently found that DOD has taken steps to increase its capacity for addressing risks relating to weapons systems acquisition, but at the same time it also found the Department has yet to fully determine key programs' oversight aspects for the Adaptive Acquisition Framework. Those are the six pathways I talked about. Moreover, in February 2023, the GAO reported that some DOD components had yet to establish key processes for the middle tier of acquisition pathway.

As we can see from these examples, while the Department is making incremental progress there are still improvements to be made. This Committee, the Senate Armed Services Committee (SASC), has also spent years creating tools to help the Department attract and retain a skilled acquisition workforce. For example, in 2023, we established the Defense Civilian Training Corps to create new opportunity for college students with an interest in vital DOD acquisition-related occupations to receive scholarships in exchange for a service commitment once they graduate. Though this program is in a very early stage, it holds a lot of promise for attracting new talent into the DOD acquisition workforce.

The acquisition workforce, the men and women of the Defense Acquisition Corps, is essential to getting the most out of the acquisition system and ensuring that we provide our servicemembers with the equipment they need while also being good steward of taxpayer dollars. We cannot solve our acquisition problems without an acquisition workforce empowered to make full use of the authorities Congress has provided the Department and the judgment to know when to take calculated, smart risks.

I want to emphasize that part about risk taking because acquisition is not about just zero risk. It is about getting us to the point where we are taking calculated smart risks, and those risk-taking decisions must be supported up the chain of command so that we can have acquisition practices that actually do give us the most effective ways of acquiring the assets that we need.

So in my view, this requires a culture where acquisition professionals know they have the trust and support of senior leaders, and we must make sure that we retain the specialized workforce once they have the skills and certification that make them so highly sought after by industry as well as government.

So my understanding is what happens is just as our acquisition workforce is getting the kind of experience they need to be able to fully utilize all of the acquisition tools that we provide for them, they are wooed away to the private sector. So there is a dip in our acquisition workforce, and that is not what we need to see happen. So I would like our witnesses to think about how we can retain a skilled acquisition workforce.

In Hawaii we know firsthand the importance of a skilled acquisition workforce to the success of our armed forces. For example, Pearl Harbor Naval Shipyard relies on a skilled STEM and techni-

cian workforce for positions from engineering to welding but also contracting officers and management specialists to ensure work is conducted on time and on budget. This is particularly true right now in the building of Dry Dock 5 in Pearl Harbor, which is the largest military construction project in the Defense Department, and unfortunately the price tag for the dry dock recently incurred a large cost overrun, highlighting the importance of ensuring robust oversight of how the Department acquires goods and services and takes care of taxpayer dollars.

I thank the witnesses for your willingness to share your insights with the Subcommittee, and collectively you all bring many decades of experience working with and reforming the Defense Acquisition System. That experience is critical as we consider ways our Committee can help ensure the Defense Acquisition System is ultimately servicing its intended purposes, delivering the capabilities our servicemembers need in a timely manner. While we often focus on what is broken with our Defense Acquisition System, I hope you will share with us your perspectives on what has been working as well as pointing to the areas where improvements are needed.

Thank you again for your expertise and your willingness to spend some time with us. I look forward to your testimony, and I do note that we are going to be in the midst of voting so the Ranking Member and I will be taking turns, going and voting and coming back.

Now I would like to recognize Ranking Member Sullivan.

OPENING STATEMENT OF SENATOR DAN SULLIVAN

Senator SULLIVAN. Thank you, Chair Hirono, and thank you for calling this hearing. It is an issue where there is strong bipartisan support to make some bold reforms.

Historian Irving Holley recognized, in 1964, that, quote, “the procurement process itself is a weapon of war, no less significant than the guns, airplanes, and rockets turned out by the arsenal of democracy in the United States.” Unfortunately right now this is a weapon that is actually starting to be used against us, and I think in many ways the purpose of this hearing is to start to turn that challenge around.

Unfortunately, it was in the 1960s when the historian, Dr. Holley, mentioned this idea of how important the procurement process is to our national defense, that the Pentagon started adopting the bureaucratic rules and regulations that have come to define our acquisition process today.

It is not surprising that the rapid pace of defense innovation in World War II and the two decades after World War II has begun to slow down dramatically. Many of the more recent technologies had to be forced upon our acquisition process, such as unmanned systems, night vision, and proliferated satellites.

While there has been no shortage of acquisition reform, as the Chair stated, progress remains slow and inadequate. Officials in the Pentagon have not maximized the use of the substantial authorities already provided by Congress. For example, the middle tier of acquisition pathway was intended by Congress to simplify the process, empower program managers, and deliver capabilities within 2 to 5 years. By contrast, traditional programs take, on av-

erage, 11 years to reach initial operational capability. Unfortunately, many legacy programs are working their way back in and slowing down the pace.

This seems par for the course with the Pentagon. Back in the 1990s, Congress created commercial item procedures so that the Pentagon could access companies that would otherwise not take on defense business. Since then, more than 165 unnecessary clauses have been added from the onerous Federal Acquisition Regulation. The same problem is apparent with other transactions which were intended to ease the adoption of cutting-edge technologies.

So today, for this hearing, it is an opportunity for our witnesses to diagnosis why past efforts have failed and prescribe solutions to fully use existing authorities. While it may be a tall order to change the culture of the nearly 200,000 acquisition professionals on how they do their job, we must focus our efforts on capabilities that can have the greatest impact within the next few years, including unmanned systems, munitions, and very importantly, software and software upgrades.

At the same time, we in Congress have a role to play ourselves. We are certainly not without fault in these challenges. In some cases, burdensome approvals, documentation, and reporting requirements have been added to flexible authorities, in essence wiping them out. I would appreciate if our witnesses could identify specific statutes that you believe constrain the Pentagon or additional authorities that could be useful.

Moreover, acquisition reform can go on so far without improving flexibilities in the funding process. Earlier this morning the full Armed Services Committee held a hearing on the Commission on Planning, Programming, Budgeting, and Execution reform. I would be appreciative if our witnesses made connections between those reforms that were highlighted in the full hearing today and the acquisition process, especially what we term the "valley of death."

Now, I know many of you are familiar with this. Here is what is happening. We have this great opportunity right now. Ten years ago, the vast majority of Silicon Valley and our tech communities were not interested in working with the Pentagon. You had the ridiculous situation, in my view, where Google employees said, "Hey, we are not going to do any work for the Pentagon." Okay. We are a free country. That is fine. But then we started realizing they were doing work with the Chinese Communist Party. That is not acceptable to anybody in this Senate.

So what we have now is a change of culture in Silicon Valley, in other tech communities, where they want to work with the Pentagon, and you have funders who want to fund companies that can work with the Pentagon. This is a giant comparative advantage we have over our adversaries like China and Russia, our innovative tech companies.

But here is the problem. They are privately funded. Their funding does not last 3 to 4 to 5 years. It might last 6 months, and the Pentagon has been too slow to take up the opportunity to work with them, telling a high-tech company with a great product, "We will put you in our budget in 3 years." Well, they are going to be bankrupt in 6 months. That is the valley of death that is squan-

dering opportunities, and it is a big focus of mine, and I would like to hear from the witnesses how we can address that.

So I would like to conclude, Madam Chair, just by saying all the buzzwords on innovation and dual-use technologies are not translating into action. Here is the sad fact: it is taking a longer time for the Pentagon to award contracts while, at the same time, the number of companies in the defense industrial base is shrinking. We have to reverse that, and we need big, bold ideas from all of you whether to change the culture of the Pentagon or get Congress to get its act together to finally, finally fix what we all recognize is a huge strategic challenge that hurts our ability to protect this Nation.

Thank you again to our witnesses and the Chair for this hearing. I think it is really important. Again, there is enormous bipartisan support to fix this, witnessed here by these two Senators. We just need the good, big ideas in which to do it. Thank you.

Senator HIRONO. Thank you, Senator Sullivan, and we will start with Mr. Schwartz.

STATEMENT OF MOSHE SCHWARTZ, SENIOR FELLOW FOR ACQUISITION POLICY AT THE NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

Mr. SCHWARTZ. Thank you, Chairman Hirono, Ranking Member Sullivan, for inviting me to talk today about the Defense Acquisition System.

Our Defense Acquisition System, as you both mentioned, takes too long to deliver capability, costs more than it should, and often fails to adopt the most advanced capabilities industry has to offer. In addition, our defense industrial base, as you mentioned, is shrinking. This is a serious problem.

In this testimony I would like to make five points.

First, workforce is the key to successful acquisitions. Better acquisition cannot be achieved through multiple audits, more regulation, or legislative fiat. Rather, giving a few capable people the authority to do their job, putting them in positions to succeed, with that holding them accountable, and minimizing red tape, this is the recipe for better acquisitions.

But that is not what we do. Instead, we measure them on compliance and process. In 2021, there was a GAO report that found that of the six agencies they reviewed, including the Department of Defense, all relied, and I quote, “on primarily on process-oriented metrics when managing their procurement organizations.” In other words, compliance and process were more important than performance. If we empower the workforce and focus on outcomes, not metrics, we can hold people accountable.

We should streamline the approval process. There are statutes that focus on supply chains that are all written just a little differently, without any policy reason for doing so. Often the official with the authority to provide waivers is so senior that the approval process is more time-consuming than it needs to be. Such convoluted requirements add to bureaucracy, it increases costs, it delays delivery, and adds confusion as to who really makes what decisions.

A one program executive officer once said to me when expressing his frustration over the approval process, “I was hired to make decisions. If you don’t like my decisions, fire me, but let me do my job.”

This brings me to the second point. We need to streamline the acquisition rules and regulations. There are just too many acquisition rules, and they are too complicated. Done right, streamlining will increase accountability by clarifying lines of authority, shorten timelines, and improve outcomes, without undermining oversight. This is the approach industry takes—fewer regulations, more consistently applied by an empowered workforce.

We should encourage using commercial buying processes and look at dollar thresholds that trigger regulations to ensure that the cost and delay of imposing requirements do not outweigh the potential savings these requirements could generate. We should take a holistic approach to oversight, ensuring that regulations aimed at solving specific problems do not have unintended consequences to the overall acquisition system that causes more harm than good.

This brings me to my third point. DOD needs to modernize its IT systems and improve how it uses data to make decisions. Data analytics can improve all aspects of procurement, but DOD’s IT and business systems are hampering its ability to leverage data.

First, DOD is using outdated systems and plans to spend more than \$275 million over the next 4 years on systems that the DOD Comptroller’s Office stated, quote, “can and should be retired,” and that is only the financial systems.

Second, DOD faces cultural and bureaucratic challenges in adopting modern IT systems, as exhibited in the stalled effort to replace the Defense Travel System with a modern and proven commercial IT solution that is used today by thousands of companies.

DOD is working to improve its data architecture. Just a few weeks ago DLA [Defense Logistics Agency] awarded a contract to adopt commercial supply chain and business capabilities. Such efforts can dramatically improve acquisitions.

This brings me to my fourth point. Operations and maintenance (O&M) matter. Sometimes our focus on the procurement of a weapons system and on driving down early procurement costs has negative long-term effects. Seventy percent of the lifecycle cost of systems is operation and maintenance, yet we are not investing sufficiently in that area. This trend is hurting readiness. It is cheaper to maintain systems that we already have than to buy more systems to make up for readiness gaps that are a result of insufficient O&M.

Finally my last point. We can be smarter in helping small businesses. Despite meeting all its small business targets, the number of small businesses working with DOD has declined over the last 12 years. The targets and set-asides too often are an end in themselves rather than a catalyst for expanding small business participation in the defense industrial base or identifying capabilities that we need.

DOD and Congress can take other approaches to expand small business participation. For example, small businesses generally do not have the resources to build or maintain secure compartment information facilities (SCIFs), creating a barrier to entry for small

businesses. Allowing businesses to access underutilized SCIF space or establishing new SCIFs, for example in excess GSA facilities, could help small and other businesses increase competition and provide new capabilities to the Department.

Thank you for the opportunity to testify today, and I look forward to our conversation.

[The prepared statement of Mr. Schwartz follows:]

Statement of Moshe Schwartz
Senior Fellow, National Defense Industrial Association
Hearing of the Readiness Subcommittee of the Senate Armed Services Committee on
The Defense Acquisition System

March 20, 2024

Chairwoman Hirono, Ranking Member Sullivan, members of the subcommittee, thank you for inviting me to discuss the defense acquisition system. The views expressed below are my own and are not necessarily those of the National Defense Industrial Association.

Our defense acquisition system takes too long to deliver capability, costs more than it should, and often does not access or fails to adopt the most cutting-edge capabilities industry has to offer. In addition, our defense industrial base is shrinking. These are serious problems. In this testimony I would like to make five points.

(1) Workforce is the key to successful acquisition.

Better acquisition cannot be achieved through multiple audits, more regulation, or legislative fiat. Rather, giving a few capable people the authority to do their job, putting them in positions to succeed, holding them accountable, and minimizing red tape is the recipe for better acquisition. But that is not what we do. Instead of empowering people to take responsibility and make good management decisions that will deliver better systems faster, we measure them on compliance and process.

In 2021, a GAO report found that the six agencies reviewed—including the Department of Defense—all relied “primarily on process-oriented metrics...when managing their procurement organizations.”¹ In other words, compliance took precedence over common sense; process was more important than performance. If we empower the workforce and focus on outcomes, we can hold people accountable. As one Program Executive Officer said when expressing frustration over the multiple layers of approval processes: I was hired to make decisions. If you don’t like my decisions, fire me, but let me do my job.

As part of empowering the workforce, we should simplify the approval processes. For example, there are a variety of statutes and regulations that focus on supply chains and the industrial base that are all written just a little differently, without any discernable policy reason for doing so. The exceptions are different, the waiver standards are different, and the officials who can approve a waiver are different. Often, the official with the authority is so senior that the approval process is very time-consuming. Such convoluted requirements add bureaucracy, increase costs, delay delivery, and increase confusion as to who makes what decisions.

¹ Government Accountability Office, *Federal Contracting: Senior Leaders Should Use Leading Companies’ Key Practices to Improve Performance*, July 27, 2021.

(2) We need to streamline the acquisition rules and regulations.

There are just too many acquisition rules, and the rules are overly complicated. In a recent poll conducted by NDIA, companies were asked “What is the most pressing issue facing the defense industrial base?” Thirty percent of those polled cited the burden of the acquisition process and paperwork, which ranked higher than concerns over budget stability, workforce, inflation, or any other issue. Respondents also indicated that it is much more difficult to do business with DoD than with other agencies. Specifically, 18 percent of respondents said it was “very difficult” to do business with DoD, compared with 10 percent for other government agencies and 8 percent for nongovernment agencies. These regulations are driving some businesses to leave the defense industrial base and others not to enter in the first place.²

Commercial companies seeking to enter the defense market must ensure that their supply chains, software and hardware content, sourcing, cybersecurity, accounting systems, and pay scale meet unique DoD and government-wide requirements. Conforming to these requirements can be time-consuming and require significant up-front investment. Streamlining the procurement process and making it easier to work with DoD is critical. When acquisition processes that are not overburdened by regulation have been used, such as Other Transaction Authority, the results have generally been positive. Some of these government-unique regulations also drive up the cost of goods and services.

Some will argue that streamlining is code for repealing necessary oversight. On the contrary. Done right, streamlining will increase accountability by clarifying lines of authority, as well as shortening timelines and improving outcomes, without undermining oversight. This is the approach industry takes: fewer regulations, more consistently applied, by an empowered workforce.

We should encourage using commercial buying processes. We should look at the thresholds, such as the Simplified Acquisition and Certified Cost and Pricing thresholds, to ensure that the cost and delay of imposing the requirements on relatively lower dollar thresholds do not outweigh the potential savings these requirements could generate. We should take a holistic approach to oversight, ensuring that regulations aimed at solving specific problems don’t have unintended consequences to the overall acquisition system that cause more harm than good. Excessive regulation prevents DoD from deploying capabilities faster, accessing more advanced capability, and maintaining a vibrant defense industrial base.

(3) DoD needs to modernize its IT systems and improve its use of data.

² National Defense Industry Association, *Vital Signs 2023: Posturing the U.S. Defense Industrial Base for Great Power Competition*, February 2023.

Deputy Secretary of Defense Hicks called data “a strategic asset” that “is essential to preserving military advantage.”³ Data analytics can improve all aspects of procurement, from estimating costs and fostering more competition, to writing contracts and implementing predictive maintenance. The data managed by DoD’s IT systems too often are insecure, unreliable, and incomplete. Many IT systems are unable to transfer data or communicate with other systems, preventing data sharing within the organizations. DoD’s IT and business systems are hampering its ability to leverage data and need to be modernized.

- First, DoD is using too many outdated systems. A recent IG report found that DoD plans to spend more than \$725 million in the next four years on systems that the Comptroller’s office stated “can and should” be retired.⁴ And that is only for financial systems.
- Second, DoD faces cultural and bureaucratic challenges in adopting modern IT systems, as exhibited in the stalled effort to replace the Defense Travel System with a modern and proven commercial IT solution. Successful IT modernization requires a culture change in the Department.

Until these twin challenges are solved, DoD will not have the secure, reliable, and complete data sets that are a prerequisite for realizing the promise of AI: AI is only as good as the data it is fed. DoD is working hard to improve its data architecture. Just a few weeks ago, the Defense Logistics Agency awarded a contract to adopt commercial supply chain and business network capabilities to help identify contractors and drive efficiency. Such efforts can dramatically improve acquisition. DLA’s effort is a positive step, but more—substantially more—needs to be done.

(4) Operations and maintenance matter.

Sometimes, our focus on the procurement of a weapon system, and on driving down early procurement costs, has negative long-term effects. Seventy percent of the life-cycle cost of weapon systems is operations and maintenance, yet we are not investing in them sufficiently. This trend is significantly hurting readiness.⁵ Investing more in the system acquisition phase to improve maintainability, and in the operations and support phase through initiatives such as predictive maintenance, will result in long-term cost savings and increased readiness. It is cheaper to maintain weapon systems that we already have than to buy more systems to make up for readiness gaps that arise from inadequate maintenance.

(5) We can be smarter in helping small businesses.

³ Office of the Deputy Secretary of Defense, “Memorandum on [Creating Data Advantage](#),” May 5, 2021.

⁴ Department of Defense, Office of Inspector General, [Audit of the DoD’s Plans to Address Longstanding Issues with Outdated Financial Management Systems](#), January 19, 2024.

⁵ Defense One, [Fewer Than 1/3 of Navy’s Amphibious Ships Are Ready to Deploy](#), March, 2023; Government Accountability Office, [MILITARY READINESS: Improvement in Some Areas, but Sustainment and Other Challenges Persist](#), May 2, 2023.

The federal government's small business strategy dates back to 1953, when President Dwight D. Eisenhower signed the Small Business Act, which established the Small Business Administration. Both Congress and President Eisenhower recognized the need to give small businesses a fair opportunity to compete for government contracts. As a former General, Eisenhower also had personal experience that reinforced the importance of small businesses to national security. DoD has significantly benefited from its small business efforts. However, even though DoD consistently meets its small business targets, the number of small businesses working with DoD is declining. The targets and set-asides are often an end in themselves rather than a catalyst for expanding small business participation or identifying critical capabilities.

DoD and Congress can take other approaches to expand small business participation. For example, small businesses generally do not have the resources to build or maintain Secure Compartment Information Facilities, creating a barrier to entry. Allowing businesses to access underutilized SCIF space—or establishing new SCIFs in excess GSA facilities—could help small and other businesses, increase competition, and provide new capabilities to the Department.

Thank you for the opportunity to share these thoughts. I look forward to your questions.

Senator HIRONO. Thank you very much. Mr. Levine?

**STATEMENT OF THE HONORABLE PETER K. LEVINE, SENIOR
FELLOW AT THE INSTITUTE FOR DEFENSE ANALYSES**

Mr. LEVINE. Thank you, Chairman Hirono. Thank you, Ranking Member Sullivan. Senator Kaine, good to see you again. I would like to just first thank you not just for inviting me here today but for the leadership that you are showing on this issue. This is a tremendously important issue, and it is really good to see Senators like you committed to making the acquisition system better.

Rather than repeating my opening statement, what I thought I would do is to respond to a few of the really good points that you guys made—Senators, sorry—that you made in your opening statements. So first, Senator Hirono, you mentioned the acquisition workforce, and I agree that that is completely key, and you talked about how we lose some of our best acquisition people when they are in their prime years.

I would urge you, one area to think about in that regard is think about military rather than civilian, because the real brain drain that we have in the acquisition system is on the military side rather than civilian side, and it is because of career patterns, where we push people out because of up-or-out when they are still in their prime. I know this Committee has thought, in the past, about career tracks that would be different for some military, but the acquisition field is one area where we probably need to think about that. We train these guys up, they are really, really good, and then we push them out because they are not going to make general officer or flag officer.

Second, Senator, you mentioned risk, and I agree with you it is important to take risk. I really appreciate the fact, Chairman Hirono, that you mentioned smart risk because it is important as we take risks that we understand where we should take them and where we should not take them. What I would say is it is impor-

tant to fail early. It is important to take risks early also. So you want to take your risks when you have less money at stake, less quantities at stake. You do not want to take big risks when you have a billion-dollar program and millions of items, and if you fail you are going to be failing with billions of dollars rather than hundreds of millions or tens of millions. You want to figure those things out early.

Turning to Senator Sullivan, I really appreciated what you said about some of the tools that are being underutilized, and you particularly mentioned there the middle tier acquisition, and I would agree that I think there are some ways in which that has been underutilized. But I would urge you to think about it this way. Not everything can be bought with middle tier acquisition authority. For example, we are never going to think about building an aircraft carrier with middle tier because you cannot build an aircraft carrier in 5 years. I think we know that. A next-generation bomber is not going to be built with middle tier because it is not going to be done in 5 years.

What I would urge you to think about is, and to push the Department on is, what that authority really tells the Department is think differently about what you are going to buy, not just how you are going to buy it but what you are going to buy. Think about things that are closer to being ready for acquisition, more incremental, and you will be able to buy them faster and field them faster, field them more incrementally and continuous, and engage in continuous improvement.

It is these huge projects where we put all of our eggs in one basket that is going to take 20 years. It cannot be done with middle tier, so you have to think about breaking it down differently and buying different things. It is not just a matter of using different procedures. It is a matter of are we going to keep buying the same things in the same way.

Second, you mentioned the PPBE [Planning, Programming, Budgeting, and Execution] Commission. I sat on that commission, as well. I would be happy, as we get into the Q&A, to talk to you about what we found and our conclusions regarding the valley of death and some things that Congress can do there.

The last thing that I would like to leave you with is, yes, the acquisition system is overly bureaucratic, it has too many regulations. I have some suggestions in my written testimony of some areas where you could take action on it. But to give credit to the people who are in the Department, I think we need to remember that what they are trying to do is really, really hard. It is really hard to build something from scratch, to design it from the ground up. It is also really hard even to buy commercial technology. Commercial off-the-shelf should be easier than it is, where we are buying something that already exists. But most of the time when we are buying commercial we are not buying off-the-shelf. We are buying a technology that will cost as much time and as much money to adapt for military use as it took to develop in the first place.

If you look at the Army's experience with battlefield radios and communications with JTRS [Joint Tactical Radio System] and WIN-T [Warfighter Information Network-Tactical] you can see systems that took decades. That is not because they are technologies

that have not been used in the commercial sector. It is because putting those into a military situation and adopting them to be battle-hardened and ready for use in all the circumstances where we need it, in a contested environment, requires adapting them, and once you start changing them it becomes extremely expensive and time consuming. It is hard to do.

So all the points that you make are really valid, but this is a hard problem to crack. It is not something where there are going to be any easy answers.

Thank you for your time, and I look forward to your questions.
[The prepared statement of Mr. Peter Levine follows:]

STATEMENT OF PETER LEVINE
SENIOR FELLOW, INSTITUTE FOR DEFENSE ANALYSES
HEARING OF THE READINESS SUBCOMMITTEE OF THE
SENATE ARMED SERVICES COMMITTEE REGARDING THE
DEFENSE ACQUISITION SYSTEM
March 20, 2024

Senator Hirono, Senator Sullivan, Members of the Subcommittee – thank you for inviting me here today to address the state of the defense acquisition system and the next steps for acquisition reform. The views I express today are my own, and should not be interpreted as reflecting the position of the Institute for Defense Analyses.

Every year, the Department spends several hundred billion dollars to purchase everything from guided missiles to truck tires and from accounting services to nuclear reactors. Tens of thousands of military and civilian acquisition professionals serving in hundreds of DOD organizations in every part of the world make millions of decisions that contribute to the success or failure of these purchases. Because DOD operates with public funds, these decisions must be fair, consistent, and defensible, and are frequently subject to appeal.

Acquiring weapon systems can be particularly difficult, because of the unique military operational requirements. The typical weapon system includes thousands of specially-designed parts, many of which incorporate advanced technology that has never been used in an operational environment, and millions of lines of software code, much of which will not be fully written and tested until the system is about to be fielded (and which will continue to evolve even after fielding). To acquire these systems, the Department must somehow select vendors, negotiate contracts, and budget for products that have not yet been fully designed. It must also incentivize performance through engineering,

development, production, testing, fielding, sustainment, and modernization phases that often take place over the course of decades.

The defense acquisition system provides a framework within which these problems can be addressed in a reasonably predictable, defensible, and transparent manner. The Adaptive Acquisition Framework speaks to a basic truth of defense acquisition: DOD must address a multiplicity of circumstances requiring different tools and different approaches. The process remains flawed and makes mistakes; however, given the number of people involved and the complexity of the problems to be solved, we should perhaps be surprised that the results are not far worse.

The ultimate objective of the acquisition system is the fielding of weapon systems and supporting products and services that enable our military to deter malign conduct and, when called upon, defeat our adversaries on the battlefield. Because we are unlikely to know whether current acquisition efforts will achieve this kind of success until years after key decisions have been made, we tend to substitute other metrics, such as measures of cost, schedule, performance, and successful innovation. Even these can be difficult to measure in real time.

Many years ago, I helped lead the charge for the enactment of the Federal Acquisition Streamlining Act of 1994 and the Federal Acquisition Reform Act of 1995 – both of which sought to add flexibility to the system and make it easier for the Department to take advantage of commercial technology and private sector innovation. Many more rounds of acquisition reform have followed. The most recent round of reforms, beginning in 2015, has included both organizational changes and efforts to promote innovation, speed, and risk-taking by creating or expanding flexible acquisition tools, such as Other Transaction Authority, Middle-Tier Acquisition, the software acquisition pathway, and outreach to the venture capital community.

The trick is to increase innovation, speed and risk-taking without undermining more traditional measures of cost, schedule, and performance. Risk-taking that is designed to solve problems and overcome bureaucratic hurdles should be encouraged, but it would be problematic for acquisition officials to take on excessive levels of technical and performance risk for major acquisition programs. If the Department makes poor decisions that result in failed acquisitions and the loss of billions of dollars (as it has at times in the past), the result will be less innovation, not more.

I have long believed that if we want more flexibility and innovation, we should provide more guidance, not less, to lay out options and business considerations for our acquisition personnel. Otherwise, the likelihood is that most acquisition officials will take the safe path and continue to do what they have been doing all along.

I am not aware of any systematic study of the impact of the most recent round of reforms either in terms of increased speed and innovation or in more traditional terms of price, schedule and performance. Nonetheless, some have expressed disappointment that the reforms did not result in more radical change. I hear all the time that the Department's continued lack of agility and high barriers to entry have led to chronic underinvestment in critical new technologies, lack of follow-through on innovative commercial solutions to defense problems, and failure to field innovative new systems.

There is some truth to that view, but much of the disappointment is based on unrealistic expectations. The new acquisition tools, when properly used, should help the Department access new sources of technology and innovation. I firmly believe that it is vital for the Department to let private sector innovators develop their own solutions to problems, rather than trying to impose government solutions. At the same time, however, we need to avoid magical thinking about what acquisition reform can accomplish.

For example, venture capital is not free money. Silicon Valley investors don't put up their money out of charity, they invest because they expect a return on their investment. In the private sector, that can be a bet on profits from millions of future users, but in the defense world, a return on investment is only possible if the Department pays the bills through future contracts. We may not have to pay today, but if we don't pay someday the source of investment will dry up.

Likewise, commercially-developed technology is rarely an easy answer to defense problems. The problem is not the technology, which we very much need – it is the difficulty of adapting the technology for military use. Experience has shown that it often costs more time and money to modify a technology for military use than it does to buy the technology in the first place. Even off-the-shelf business systems cost billions of dollars and take years to configure to meet DOD needs, so it is hardly surprising that commercial technologies have proven difficult to adapt for use in a more challenging battlefield environment.

The biggest obstacle to increased investment in innovative new systems and cutting-edge technologies is not the acquisition system or the acquisition culture. It is funding. New systems and technologies compete for funds against the ongoing requirement to maintain, operate, and recapitalize an extremely expensive world-wide force structure. Some proponents of military innovation would like to scrap our existing force structure and start over, but that isn't likely to happen. And as long as we still have that force structure, we are still going to need traditional acquisition tools to support it.

It might sound like a good idea to extend commercial contracting and other streamlined approaches to major defense acquisition programs run by big defense contractors, but when we tried that starting in the mid-1990s, the experiment resulted in extreme cost growth and the loss of billions of dollars on failed programs. We need DIU and SCO and all of the other innovative acquisition organizations that have been set up in

recent years, but we also need the line organizations in the military departments that do the hard work of buying billion-dollar systems and making sure that they work as intended.

Finally, the constant cycle of acquisition reform imposes its own costs on the system. Each piece of legislation requires a team in the executive branch to implement it, adding to headquarters requirements. Cumulatively, multiple changes can be hard for the workforce to digest, adding to confusion and uncertainty. And a major reform – like the break-up of the Under Secretary of Defense for Acquisition, Technology, and Logistics – can take years to implement, disrupting ongoing work while implementation is under way.

In light of these considerations, I recommend that the Committee consider a handful of carefully-selected reforms to strengthen aspects of the acquisition system. The options that I would suggest include the following:

- (1) extending the definition of commercial items to products that are developed exclusively at private expense;
- (2) reinforcing existing authority to waive statutory requirements in the acquisition of commercial and commercial off-the-shelf items;
- (3) strengthening the software acquisition pathway by authorizing the rapid contracting mechanism recommended in the 2019 report of the Defense Innovation Board;
- (4) requiring an independent study of the impact of the most recent round of acquisition reforms; and
- (5) establishing a robustly-funded new Civilian Workforce Recruitment and Development Fund.

In an appendix to my statement, I have explained the rationale for each of these proposals.

None of the reforms that I suggest will “blow up the system” or dramatically change how we acquire military systems or commercial technologies. However, they are all real, achievable measures that would help fine-tune the existing acquisition system to reduce regulation and achieve better results – including better access to non-traditional contractors and commercial technologies. And unlike some other proposals, they will not put at risk the other cost, schedule, performance, and innovation objectives of the acquisition system.

I look forward to your questions.

APPENDIX: RATIONALE FOR PROPOSED REFORMS

1. *Encourage commercial innovation and investment by extending the definition of commercial items to products that are developed exclusively at private expense.*

As Bill Greenwalt and I pointed out in a joint article we wrote in 2019, the existing definitions of commercial products and commercial off-the-shelf (COTS) products are based on a buyer's perspective of commerciality. The underlying idea is that if a product has been tested in the commercial marketplace, the government should be able to rely on the product and the price, and can safely use simplified procedures and commercial pricing. This approach provides important access to vendors who want to sell the government existing products.

An alternative approach would view commerciality from a seller's perspective. The underlying idea is that if a product was developed exclusively at private expense, the seller has earned the right to sell it at market prices without having to accept burdensome government-unique terms and conditions, regardless of whether the product is tested in the commercial marketplace or available to other buyers. If adopted, this seller's perspective would provide its own advantages to the government, encouraging commercial entities to invest their own funds in innovative solutions to DOD problems.

I recommend that the Committee consider revising the definition of commercial products to allow commercial treatment for a product that meets criteria of commerciality, as described above, from either buyer's perspective or the seller's perspective.

2. *Make it easier to access commercial technologies by taking full advantage of existing authority to waive statutory requirements in the acquisition of commercial and commercial off-the-shelf items.*

The Federal Acquisition Streamlining Act of 1994 and the Federal Acquisition Reform Act of 1996 authorized the U.S. government and the Department of Defense to waive burdensome government-unique contract clauses and legal requirements to make it easier to acquire commercial and commercial off-the-shelf (COTS) products. Unfortunately, this waiver authority has never been fully exercised, leading the total number of government-unique contract clauses applicable to commercial contracts to almost triple, from 57 in 1995 to 165 today.

The situation is particularly egregious with respect to contracts for COTS items. It is my understanding that no comprehensive review has ever been conducted to assess the need for COTS waivers. As a result, Section 12.505 of the Federal Acquisition Regulation waives the applicability of only four statutes with regard to COTS purchases. By contrast, nearly identical language authorizing statutory waivers at the subcontract level has been used to waive 16 statutory provisions.

I recommend that the Committee consider a legislative provision requiring the Department to conduct a comprehensive review of statutes applicable to purchases of COTS items and work with other Executive Branch officials to promulgate an appropriate set of COTS waivers under the existing authority.

3. Strengthen the software acquisition pathway by authorizing the rapid contracting mechanism recommended in the 2019 report of the Defense Innovation Board

The top recommendation of the 2019 report of the Defense Innovation Board task force on Software Acquisition Practices (DIB-SWAP) was the establishment of one or more new acquisition pathways for software that would “prioritize continuous integration and delivery of working software.” Congress acted on this recommendation in Section 800 of the FY 2020 NDAA by authorizing the establishment of a new software acquisition pathway.

However, the legislative provision omitted one of the key acquisition tools included in the DIB-SWAP recommendation: a rapid contracting process that would enable the Department to access the most highly-qualified software talent rather than focusing on hourly rates and other cost considerations.

This recommendation was based on the view that some software architects and engineers are just dramatically more productive than others. This is the industry notion of the “10X software engineer,” the search for elite software designers who are ten times more productive than their counterparts. As the DIB-SWAP report explained, “Software is disproportionately talent-driven. Access to strong engineering talent is one of the most important factors that determine the success or failure of software projects.”

The federal contracting rules make it difficult for the Department to access “10X” talent in the private sector, even in cases where it might be critical to the success or failure of a project. Under the Competition in Contracting Act, price must be a factor in every competitive procurement. In competition for cost-type design and development contracts, the price factor frequently devolves to a consideration of hourly rates. Low hourly rates do not actually reduce costs or solve problems if they result in less qualified talent, lower productivity, and failed programs. Past performance and qualifications are factors as well, but they are rarely a match for price.

Congress recognized this problem 50 years ago, when it enacted the Brooks Act, requiring the selection of architects and engineers on the basis of competency, qualifications, and experience rather than price. Under the Brooks Act, companies submit qualification statements, and the winning bidder is selected on the basis of technical competence and professional qualifications directly related to the services required. The theory behind the Brooks Act is that highly-skilled engineering services

required in the design of critical infrastructure are simply too critical to be awarded to the lowest bidder.

The legislation proposed by the DIB-SWAP report would have extended this principle to software engineering, authorizing the award of software contracts on the basis of statements of qualifications and past performance data submitted by contractors, supplemented by discussions with two or more contractors determined to be the most highly-qualified, without regard to price. The enactment of this legislative proposal would enable the government to access the best software talent available, with the potential for dramatically improved performance.

4. Require an systematic review of the impact of the most recent round of acquisition reforms, including the reduction in OSD authority and the new acquisition flexibilities.

Beginning in 2015, Congress and the Department have undertaken a major round of acquisition reform, delegating Milestone Decision Authority to the military departments, splitting the office of the Under Secretary of Defense for Acquisition, Technology, and Logistics in two, establishing middle-tier acquisition authority, expanding other transaction authority, replacing the “one-size-fits-all” approach of DOD Directive 5000 with new acquisition pathways, including a software acquisition pathway, and emphasizing risk-taking and “the need for speed” over traditional cost, schedule and performance objectives.

Most acquisition professionals appear to be strongly supportive of the new acquisition flexibilities, but less convinced of the merits of changes to the acquisition organization. However, I am not aware of any systematic review of the impact of any of these changes. As a result, we do not know whether the reforms have brought about more speed, more innovation, or better access to commercial technology. We do not know whether the acquisition system is really doing things differently, or is just doing the same things with a different label. We don’t know whether we are buying different things or employing new

sources at any greater rate than we did in the past. And we don't know what impact, if any, the changes have had on the cost, schedule, and performance of acquisition programs.

Answers to these questions are needed to determine whether the reforms are on track, or adjustments are needed. It is often difficult to assess the impact of a specific acquisition change, both because the acquisition system takes so long to produce results and because acquisition trends can be impacted by so many other factors. In this case, however, multiple changes took effect in a relative short period of time and the seven or eight years that have passed since then should be sufficient to start seeing their impact. For this reason, I recommend that the Committee consider requiring a systematic review of the impact of the last round of acquisition reform.

5. Help prepare the DOD workforce for new acquisition challenges by establishing a new Civilian Workforce Recruitment and Development Fund.

Last month, the Senate Armed Services Committee held a hearing on challenges for defense acquisition and the defense industrial base. In kicking off that hearing, Chairman Reed noted that:

“[T]here is nothing more important for our defense acquisition strategy than our workforce, the men and women of the Defense Acquisition Corps, and the personnel in the defense industrial base whom they help to guide and oversee. We cannot solve our acquisition problems without an adequate supply of skilled and trained workers.”

Ranking Member Wicker built on this theme, stating that the Department needs “a civilian workforce that is capable, innovative, and dedicated,” and that “the status quo is unacceptable, and the evidence is everywhere we look.”

If we want to attract and retain needed civilian talent, we will have to actively engage in recruiting by establishing an ongoing presence on college campuses and creating a new brand identity for the civilian workforce; make civilian careers more attractive by developing training and rotation programs, career tracks, career planning, and career advocacy; and where necessary, pay recruiting and hiring bonuses.

Fifteen years ago, this Committee was instrumental in addressing a similar set of problems by establishing the Defense Acquisition Workforce Development Fund (DAWDF) to provide the Department a dedicated source of funding to rebuild the capacity and improve the equality of its acquisition workforce. Over the decade that followed, the DAWDF provided roughly \$400 million a year for recruiting, retention, training and development of the acquisition workforce. The results of this effort were evident. When I was in the Department near the end of this period, for example, the acquisition professionals who worked for me tended to be younger, more creative, more tech-savvy, and more energetic than other components of the workforce.

Now, however, the DAWDF (renamed the Defense Acquisition Workforce Development Account (DAWDA)) appears to have run its course, with the President's budget request dropping to around \$50 million per year – an important resource, but far short of what is needed to reenergize the workforce. Congress has added some funding, but only for relatively narrow initiatives. The Defense Civilian Training Corps, for example, may prove to be a worthwhile program, but it is a high-cost approach that is unlikely ever to meet more than a small fraction of the Department's civilian workforce needs.

I recommend that the Committee consider replacing the DAWDA with a new, more energetic, more robustly-funded Civilian Workforce Recruitment and Development Fund to provide a reliable source of needed investment in building needed civilian talent.

Senator HIRONO. Thank you very much. Mr. Greenwalt.

STATEMENT OF WILLIAM C. GREENWALT, Ph.D., NON-RESIDENT SENIOR FELLOW AT THE AMERICAN ENTERPRISE INSTITUTE

Dr. GREENWALT. Thank you, Chairman Hirono and Senator Sullivan, Senator Kaine, other distinguished members of the Subcommittee.

I think I am going to do the same thing. I entered a statement for the record, and I will just kind of summarize and try to take on some of these points.

The first thing is yes, we do have a system today, an acquisition system, that is optimized for peacetime, and I think we have to understand that. A lot of conflicting different executive orders, regulations, law that drive behavior in the acquisition system.

For 30 years we have been optimizing this system, and it is frankly now too slow to do what is necessary. This Committee, this Subcommittee, about 10 years ago essentially looked at that and said we need to go faster, and created a toolkit, including middle tier, including production and other transactions, including ways of hiring acquisition workforce faster, and it was adopted and tried to replicate a system of innovation that the Department of Defense used to have in the post-World War II era, in the 1950s, and it was driven by time. It was driven by urgency. It was driven by step-by-step, serial operational prototyping. In other words, middle tier type of acquisition was a way of trying to replicate that system.

Guess what? What did we do in the 1950s? We deployed aircraft carriers, new aircraft classes in less than 5 years, bombers in less than 5 years, ICBMs, first of a kind, in less than 5 years, first reconnaissance satellites in less than 5 years. We did these types of new innovations.

Now would they be like the type of system that we have created in the 1960s, 1970s, 1980s, and 1990s? No, because there were different criteria we have added to ensure certain types of process and certain types of systems that are producible or maintainable or whatever. But innovation was driven in that time through a time-based, competitive process of serial operational prototypes, and this Committee, with middle tier, tried to replicate that.

The second most important part was at that time the industrial base was brought together. The commercial and the defense industrial base was working together, and the barriers that exist today between Silicon Valley working with defense or other commercial companies did not exist then and is so much higher today. So other transactions are one of the ways to do that because you can negotiate a commercial terms and conditions, a commercial way of doing business with those companies. The idea is to bring them forward.

Probably the biggest barrier today—and I am glad Peter is here from the PPBE Commission—is budgeting. In other words, the valley of death problem is a budget issue-driven problem. Venture capital needs revenue, and each time you move forward in the acquisition process there is kind of a waiting period, and in any of those waiting periods there is a need for flexible funds to carry it through to the next stage? Wherever the PPBE Commission has proposed those types of flexible funding, that is something I think for this Committee to seriously consider because it really could do a lot of good things.

I proposed a pilot in my testimony in which Congress could essentially consider as a way of empowering agencies like DIU or SOCOM or whatever to essentially pull together these acquisition authorities and streamline the ability for them to use that. I think the Replicator Initiative is a really positive initiative if we can get

there. You have got to put an organization in charge of these things. You need to ensure that they have got the right acquisition workforce. That requires hiring authority and that requires various authorities to be able to use there. You have to empower them to use other transactions, empower them to use rapid acquisition authority, empower them to use middle tier authority, and finally, give them the types of flexible budget flexibility that can carry these programs into the next phase.

With that I think I am looking forward to your questions, and hopefully we will be able to give you some answers.

[The prepared statement of Dr. Greenwalt follows:]



Statement before the Senate Committee on Armed Services Subcommittee on Readiness and Management Support on "An Update on the State of the Department of Defense Acquisition System"

The State of the Defense Acquisition System, 2024

Dr. William C Greenwalt
Non-Resident Senior Fellow

March 20, 2024

The State of the Defense Acquisition System, 2024

Chairman Hirono, Ranking Member Sullivan, and other distinguished members of the subcommittee, I would like to thank you for the opportunity to testify this afternoon on the state of the Department of Defense's (DOD) acquisition system, to include recent changes to the acquisition system, especially those made in response to congressional direction.

The defense acquisition system works as well as can be expected given the many, and oftentimes conflicting, mandates it must meet in law, executive orders, regulation, and policy. With enough time, the system can eventually provide demonstrated capability to the warfighter, account for the expenditure of taxpayer dollars, and guard against corruption. The acquisition workforce is stressed and overworked but is committed to complying to the best of their ability with all required mandates. The system is neither efficient nor cost effective, but it is for the most part fair and deliberate.

Still, DOD's legacy acquisition system is too slow to be competitive and is only incrementally innovative. The industrial base and the overarching defense acquisition system (research, development, acquisition, contracting, requirements, budget, and logistics) have been optimized for a peacetime cadence after 30 years without a great power competition or conflict. This limited threat environment and a false assumption that US defense technological dominance will continue to exist has crowded out the importance of time in terms of decision-making, process, and innovation.

The Pentagon has rapidly fallen behind the commercial sector and is in danger of falling behind our adversaries. Commercial industry continues to move at the speed of Moore's law while DOD acquisition moves at the speed of its outmoded linear processes and bureaucracy. Commercial innovation is in the process of revolutionizing defense and now dominates 11 of the 14 technologies that DOD has identified as critical to its future.¹ Even in the three areas that DOD has identified as defense-specific, there is a significant commercial interest and future application, just as was the case with defense-specific space technology decades ago.

As the threat changes, our acquisition system must be flexible enough to adapt to disruptive new technology trends in real time. In 2015, shocked by the invasion of Crimea and the militarization of the South China Sea, then SASC Chairman McCain saw that the threat was indeed changing and that the US needed new acquisition tools to meet it. It has been almost 9 years since this Committee passed the first McCain-sponsored reforms that provided alternatives to the one-size fits-all, time-consuming, defense acquisition system. DOD was given the tools to not only move fast with non-traditional sources of innovation, but to quickly hire the acquisition workforce necessary to implement a time-based commercially equivalent acquisition approach.

Removing non-commercial requirements and going around bureaucratic processes were at the heart of these acquisition reforms. Production Other Transaction Authority (OTA), Middle Tier

¹ Jaspreet Gill, "Pentagon's 'Glaring Weakness': Bureaucracy Hampering Commercial Tech Adoption," *Breaking Defense*, April 7, 2022, <https://breakingdefense.com/2022/04/pentagons-glaring-weakness-bureaucracy-hampering-commercial-tech-adoption/> and <https://www.cto.mil/usdte-strat-vision-critical-tech-areas/>

of Acquisition (MTA), expanded authorities to contract with commercial and non-traditional contractors, flexible funding accounts, and the ability to hire Highly Qualified Experts (HQE) were all put in place by Congress in anticipation of emerging technology trends and a more taxing security environment.

Despite these reforms designed to elevate speed and the importance of time in acquisition by creating alternative acquisition pathways around the Pentagon's peacetime acquisition system, progress so far has been marginal at best. Without embracing the changes championed by this Committee in the past to speed acquisition time, DOD will not be capable of meeting the threats of the future.

Specific Issues of Concern to the Subcommittee

The following is a snapshot of where I believe DOD stands as far as implementation of these authorities, current issues of concern, and what can be done to better implement the reforms and flexibilities of specific interest to the Subcommittee. These include the adoption of flexible authorities in the Adaptive Acquisition Framework; perspectives on other transactions agreements, consortia arrangements, and commercial item procedures; supply chain issues; the acquisition workforce; data analytics to improve acquisition; and improving acquisition related to Foreign Military Sales.

Acquisition Authorities

Adaptive Acquisition Framework: It took almost four years for DOD to put in place the Adaptive Acquisition Framework that attempts to implement congressionally-passed flexible authorities. The subsequent widespread use of these tools has been unfortunately constrained by internal DOD bureaucracy, time-consuming approval processes for the use of these flexible authorities, and a seemingly risk-averse culture. Progress is being made, particularly with the use of MTA authority, but it is not fast enough and DOD is not taking clear advantage of the potentials of the authority.

Middle Tier Pathway: MTA authority, authorized in Section 804 of the 2016 National Defense Authorization Act (NDAA), is perhaps the most important authority DOD has in its current acquisition arsenal. The intent of this authority was to get 80 percent solutions into the hands of the warfighter as rapidly as possible in a time-constrained manner to compete with China. MTA comprises two separate authorities each designed around specific examples of DOD programs of the past that would not have been deployed if the traditional major weapon systems acquisition process was used.

The first is serial rapid operational prototyping designed to mimic the process used for the first reconnaissance satellites, intercontinental ballistic missiles, the B-52A-H transition, jet aircraft programs of the 1950s, and the first nuclear submarines—all deployed in less than 5 years' time. None of these systems would have been declared operationally suitable or effective by

today's operational testing criteria, but the US would have never been able to compete against the Soviet Union if it did not deploy these original innovations when it did. These systems then evolved in a series of serial, time-constrained, operational prototype efforts with limited production runs, resulting in, for example, the B-52 that is still operational today. Bridging together a number of serial MTAs was envisioned as a means to replicate this past successful developmental and acquisition process.

The second MTA pathway is rapid fielding and this was tailored after the Mine-Resistant Ambush Protected (MRAP) program. MRAPs were something that the combatant commander needed immediately and were an 80 percent solution. Moreover, if DOD would have conformed this program to the traditional defense acquisition system, the vehicles may still be in testing and development and thousands of US service members would have lost their lives unnecessarily.

Over 130 programs have gone through or are now using the MTA pathway. The Air Force was the first adopter under the last administration although this enthusiasm seems to have tapered off as the Air Force reverts back to more traditional acquisition methods. Special Operations Command (SOCOM) may now be the leading user of the authority. Early implementation of MTA was reported to have been held back by several years waiting for funds in the Planning, Programming, Budgeting, and Execution (PPBE) and appropriations processes. The Section 804 Rapid Prototyping Fund was envisioned as the means to kickstart these efforts, but the appropriators and DOD never funded it, so time was lost.

Indications are that process creep and the need for additional signoffs are emerging in the approval process for an MTA. There is also a danger that more traditional Major Defense Acquisition Program (MDAP) acquisition-type processes are now entering the MTA pathway. This would increase decision time to start an MTA and threaten execution time, taking a 5-year effort off the clock and turning it into an 8 to 10-year effort.

Despite these trends, there have been many success stories of the use of MTA documented by DOD and elsewhere.² Most significantly, the oversight community found that the MTA pathway is doing exactly what it was designed to do with the DOD Inspector General concluding that the "use of the MTA pathways increased efficiencies and effectiveness by streamlining acquisition processes and expediting prototyping and fielding."³

Despite this initial success, MTAs comprise only a small portion of DOD's budget and acquisition attention. Congress should focus on improving MTA decision time and look for process creep in the acquisition and requirements process that may slow down these efforts. It should also look to provide flexible funding to start these programs and get a head start before they enter the formal budget process.

² Pete Modigliani, Dan Ward, and Matt Macgregor, "Get to Know the Middle Tier of Awesome... Er, Acquisition," Defense One, September 12, 2022, <https://www.defenseone.com/ideas/2022/09/get-know-middle-tier-awesomeer-acquisition/377017/>.

³ Department of Defense, Inspector General, Audit of Department of Defense Middle Tier of Acquisition Rapid Prototyping and Rapid Fielding Programs, September 28, 2021, i, <https://media.defense.gov/2021/Sep/30/2002864712/-1/-1/1/DODIG-2021-131.PDF>.

Rapid Acquisition Authority (RAA) Pathway: This authority, designed to speed capability to the warfighter in under 2 years, was provided by Congress in the early 2000s and then evolved during the Iraq and Afghanistan conflicts. RAA included both flexible acquisition and budget authority. As with many flexible acquisition authorities, the processes to use these authorities appear to have lengthened and become more bureaucratized. Congress should review these processes to determine if combatant commanders' requirements are being well-served by the RAA pathway, and if there are better ways to do so.

It may become necessary to give the commander of Indo-Pacific Command (INDOPACOM) and other geographic commands limited Rapid Acquisition Authority to address urgent needs in their theater of operation. While some of the functional combatant commands such as SOCOM and Cyber Command have such limited acquisition authority, the geographic commands do not. Congress in the past gave the now defunct Joint Forces Command (JFCOM) limited acquisition authority to buy on behalf of the geographic commands. With JFCOM's disestablishment in 2011, that authority expired. It may be time to rethink that authority with respect to the geographic commands and restore and expand some of RAA's lapsed funding authority and transfer that to the geographic commands under a pilot program.

Software Pathway: The Adaptive Acquisition Framework now at least recognizes that software is different than buying a major weapon system. Still, the acquisition system is struggling with how to fund the development and continuous upgrades of software. The Defense Innovation Board said it best in that "software is never done." Our current colors of money and budget processes do not fit that paradigm. Since software is continuously changing and does not fit well within the traditional budget categories of RDTE and Procurement, it may require either the use of O&M funding or an expansion of the development of a new "software" color of money that is more robust and easier to use than the ongoing piloted software RDTE category.

Contracting has its own challenges with how to buy software as a service and what to do about intellectual property (IP) and the ownership of software code produced at a contractor's expense. This will impact how DOD will be able to successfully incorporate future artificial intelligence tools into its operations. There appears to be a movement to trying to "own" the software code and algorithms of whatever is provided to DOD. This is causing many vendors to reconsider working with DOD as they fear that their IP will be transferred to their competitors or that it makes no business sense to invest their capital on a one-time return with DOD.

Major Capability Acquisition (MCA) Pathway: Most of the money that DOD spends on weapons programs is found in this category. The traditional acquisition system has seen decision time to start a program and get it on contract rise from less than a year in the 1950s to closer to 9 years today, while time to initial operational capability or new innovation in the field has gone from 4 years to 10-20 years.⁴

⁴ See William Greenwalt and Dan Patt "Competing in Time: Ensuring Capability Advantage and Mission Success through Adaptable Resource Allocation" Hudson Institute, February 2021. https://www.aei.org/wp-content/uploads/2021/02/Greenwalt_Competing-in-Time.pdf

There are several ways to attack this time problem. The predictive and lumbering requirements process forecloses innovation opportunities from the start as it is the gateway to the acquisition and budgeting system. The up to 3-year Joint Capabilities Integration and Development System (JCIDS) process is a significant driver in slow acquisition decision time and should be the next phase of acquisition reform. The 3+ year budgeting process now has a series of reforms for Congress to consider from the PPBE Commission. For something as large as an MCA/MDAP, it will be difficult to reduce the 2+ years to get to first contract award unless these programs are preceded by an OTA prototype award or a series of MTA prototyping efforts.

There is a need to streamline the MCA milestone acquisition process both in terms of decision time and execution. Formal Milestone (MS) A requirements in law are unnecessary and Weapon Systems Acquisition Reform Act of 2009-mandated requirements should be reviewed and streamlined. Nunn-McCurdy baselines are unrealistic and counterproductive and set the Department up to fail. Ultimately, and this will require a major culture change, most MDAPs using the MCA pathway should be crowning points in a series of MTAs or OTA advanced prototypes that lead to a capability that will be produced at scale. Thus, for most MCAs, it may be more appropriate to look at a new point of entry into the acquisition system – something closer to a MS B prime that is only a year or so out from a MS C production decision. MTAs and OTAs can be used to provide immediate operational capability while reducing risk to such a degree that the only need for an MCA is to produce something at scale.

Production at scale is something that the US will need a lot more of given current threats. All existing programs that currently have a production line should be considered national assets. Given geopolitical tensions, none of these should be closed down in the near future. These lines should maintain minimum viable production with executable plans in place to rapidly ramp up production even while developing new systems. The biggest lesson from Ukraine may be that you can never have too many munitions, missiles, or platforms and we should execute on that knowledge immediately.

Contracting Authorities

Commercial Item Procedures: For the last 30 years, Congress has been attempting to force DOD to restrain its desire for unique requirements and buy what is available in the commercial marketplace. The preference for commercial items is clear but the Department's contracting community keeps pushing back because it still does not know how to price goods and services from commercial contractors. While it is much easier for the contracting community to price Commercial-off-the-Shelf (COTS) products that you can buy at Home Depot, it has historically found it extremely difficult to buy "of a type" products and services that are not identical to what is being sold commercially. In essence, DOD struggles with how to price value.

As the definition of commercial items broadened in the last decade to include non-traditional contractors—i.e., those that do not contract via cost-type contracts—the commercial "of a type" problem has become moot as anything a non-traditional contractor sells is required to be treated as a commercial contract under Federal Acquisition Regulation (FAR) Part 12 procedures. Thus,

DOD is now forced into making value decisions about the price it pays from commercial companies as if it were a part of the commercial market.

One of the biggest issues with FAR Part 12 contracting has been contract clause creep. There has been a proliferation of unique government clauses that have been inserted into standard FAR 12 contracts that were not envisioned when this authority was created in 1994. This is making many commercial contractors wary of what they are signing up to and wanting to migrate to OTA contracting authorities. DOD was asked by Congress to scrub its contracting clauses for FAR 12 and recently reported back to Congress. From press accounts, it looks like very few clauses were recommended to be eliminated. This implies that DOD is still not serious about commercial contracting. Congress may have to take a firmer line and prohibit or limit the numbers of commercial contract clauses that DOD can use. If it doesn't, more commercial innovation will migrate to OTAs which is perhaps not the ideal situation.

Other Transactions Authority: If MTAs are the Department's most powerful acquisition tool, OTAs are its most powerful contracting tool. Bringing the two authorities together, as Congress envisioned in 2015, could revolutionize defense acquisition. OTAs are in essence a legal fiction: by being defined as a "transaction" and not a "contract," OTAs are not bound by contract law and the FAR. OTAs thus can be a blank sheet opportunity to negotiate true commercial business arrangements. Still, OTAs can also be filled up with all sorts of non-commercial contracting clauses and recent trends have seen the same type of non-commercial contract clause creep in OTAs as has been seen in FAR 12 commercial item contracting. Congress will likely need to push back on this trend as it will radically undermine not only congressional intent behind OTAs but the ability to work with the most innovative portions of the US industrial base.

The lineage of OTAs can be traced back to special "experimental" contracting authority from the 1920s that fostered innovation in aircraft development and carrier aviation. This authority was a part of DOD's DNA during WWII. As NASA was set up post-Sputnik, similar "other transactions" authority was granted to it as part of the 1958 Space Act. As the Cold War bureaucratized in the 1960s, the use of experimental authority waned to the degree that it was mostly forgotten. By the 1990s, its usage was virtually non-existent and Congress tried to resurrect it, first by creating a new research OTA authority and then by adding a prototyping authority.

In the 2016 NDAA, Congress went one step further by allowing for successful prototypes that were originally competed to proceed to rapid sole source follow-on production OTAs. This was designed to revolutionize and streamline DOD procurement with non-traditional sources of innovation, providing a means for these contractors to never come in contact with the FAR. In the same NDAA, Congress created another authority to serve as a baby step or a gateway to OTA usage and that was the Commercial Support Openings (CSO) process. This authority was essentially a template OTA process, although FAR usage was not ruled out. CSOs have been the primary model that organizations like the Defense Innovation Unit (DIU) have been using.

DIU's use of OTAs under the Commercial Solutions Opening process is to be commended. However, it seems that DIU has been constrained in considering or taking advantage of broader

OTA authority ever since Oracle's successful (but still limited in application) protest with the Government Accountability Office threw a wrench in DIU's REAN Cloud OTA. The Department in general has become more risk-averse in its use of OTAs after that decision and OTA usage has coalesced around CSOs for commercial solutions and consortia that have trended toward the traditional defense industrial base (DIB).

OTA consortia were first established over 25 years ago in the traditional defense industry (shipbuilding and munitions) as a way to better coordinate governmental R&D efforts and to encourage collaboration with the traditional defense industrial base that were precluded by acquisition rules and practices. But OTA consortia have shown the potential to be a primary method to work with the non-traditional industrial base as well.

In what is arguably the most successful use of an OTA (NASA's Space Act developmental service launch OTA with SpaceX to develop the Falcon 9 is another contender), Operation Warp Speed delivered a coronavirus vaccine in record time through an unexpected and clever use of the authority. The US government was able to deploy over \$10 billion in the time span of months rather than years through a pre-existing OTA medical consortium that consisted of firms who traditionally choose not to do business with the government, or only under strict commercial terms and conditions.

Just a few years prior to the pandemic and most significantly, this medical consortium came together first through private sector efforts that tried to include the entirety of the commercial medical industrial base. Eventually, the Army was persuaded to establish an OTA purchasing framework around what was to be called the Medical CBRN (Chemical, Biological, Radiological, and Nuclear) Defense Consortium (MCDC), similar to other more traditional defense industry OTA consortia that it already managed. Then as the Army is prone to do when faced with non-traditional sources of innovation, only a small amount of government research was actually conducted through this medical OTA. Still, the MCDC consortium allowed for collaboration, teaming, and problem solving of potential government needs and critically, once the US was in an emergency situation, there was already a procurement vehicle in existence with the right type of industrial base to respond. There was no wasted time needed to implement a year-long solicitation process just to put in place a traditional contracting arrangement under the FAR that most of the pharmaceutical industry would not sign up to anyway. The government was able to flexibly contract with the private sector immediately and not only for multiple research paths but immediate follow-on production when ready.

The reality though is the creation of a medical OTA consortia was an accident, not a planned occurrence, and we were lucky that it was already in place prior to an emergency. As geopolitical threats continue to grow and innovation is planted squarely in the commercial market, it would be a wise decision to create multiple OTA consortia comprised of non-traditional sources of innovation in the 14 critical technology areas that OSD Research and Engineering has identified.

Supply Chain Issues

Supply Chain Shortfalls: The industrial base is still optimized for peacetime. Without demand signals such as in multiyear procurement contracts for munitions, it will be impossible to build up the supply chain. Over the years, more and more businesses have exited the market as production planning and legacy spares buying have been haphazard at best. The use of Defense Production Act authorities can be helpful in keeping some of these companies in the DIB, but that will continue to be a challenge with a lack of funds. Congress and DOD should focus first on “War Stopper”-type criteria for those companies that will be needed to ramp up production when needed in a crisis.

Supply Chain Illumination: Past attempts to obtain better supply chain illumination have either failed or have been only able to take a snapshot in time. DOD has for the most part outsourced the management of its industrial supply chain to the prime contractors where they have focused on their immediate programs and not on sector-wide vulnerabilities. Advanced data analytics and AI offer the potential to improve supply chain visibility for DOD. The biggest danger to first consider with any such effort is to determine where China is in the supply chain. Vulnerabilities from Chinese parts in the supply chain need to be identified and the risk assessed. If that vulnerability needs to be mitigated and sourcing moved, DOD will need to look to trusted sources from within the National Technology and Industrial Base (NTIB), our allies, or friendly countries. The most critical items will need to be produced in the US or within our most trusted allies in the NTIB.

Acquisition Workforce

Congress already had in place the right solution to improve the acquisition workforce in the flexible Defense Acquisition Workforce Development Fund (DAWDF) that was established in 2008. This fund was able to spend billions of dollars that were instrumental in hiring and training a new workforce in anticipation of retirements at the time. Unfortunately, the DAWDF was disestablished in 2018 due to Appropriations Committee concerns about its funding mechanism that used expiring unobligated balances. Its replacement, the Defense Acquisition Workforce Account, is now totally inadequate to meet the needs of a growing acquisition workforce problem.

The workforce may be in even worse shape than it was in 2008. A third of federal employees are near retirement and just 7 percent of employees are below age 30. The acquisition workforce is overworked, underpaid, and increasingly seeking better quality of life jobs with greater pay in the private sector. The result is that for some of the most complex systems in existence, we have inexperienced personnel who cannot afford to engage in creative thinking or problem solving. We are building up a cadre of an ever more risk-averse workforce at the most critical time that risk-taking is vitally needed. Congress should fix this and the first thing to do would be to re-establish the DAWDF funding authority and focus on training, direct hiring, and the creation of more OTA transactions specialists with the skills to effectively manage OTAs. HQEs should be

brought in to not only manage and implement MTAs and large programs but to train up personnel so they can eventually manage such programs.

Data Analytics

Data analytics and AI offer a great opportunity to improve the acquisition process. The Department should start with its contracting writing tools. The output of these tools is currently riddled with mistakes that require contractors to spend an inordinate amount of time reviewing government documents to ensure that they are correct. Data analytics can be helpful in supply chain and test and evaluation, but even something as mundane as finding areas of unobligated balances that can be moved to other priorities would be worth DOD's investment in data analytical solutions. It will likely be decades before DOD could ever consolidate all of its disparate data systems (if that was even possible). If software tools can now move within these existing data bases and extract useful data, this could obviate the need for consolidation and lead to better results such as in financial reporting.

International Sales and Cooperation

The US has many of the best export versions of military technology in the world, at least for now. It has given up markets in the past such as for drones, night vision, and space systems due to stringent export control processes under the International Trafficking in Arms Regulations (ITAR). The Foreign Military Sales (FMS) government-to-government sales process and Direct Commercial Sales (DCS) export processes suffer from similar linear, step-by-step, bureaucratic hurdles that would be familiar to the defense acquisition process. These processes take too long and purchasing countries increasingly have other alternatives to go to.

The selling of arms is a foreign policy decision but is also increasingly disconnected from the realities of the industrial base's ability to increase production. FMS customers after navigating the tricky path of approval then have to wait in line for years to actually see something delivered to their doorstep. The US arms sales process can't be based on empty promises for equipment that will likely never be delivered given production backlogs and timelines. Congress should look to create an inventory of exportable weapon systems that could be tapped in cases where systems are needed urgently, as in Ukraine, without having to tap into US stockpiles.

As defense technology progresses in foreign countries, it will be more important for real collaboration and cooperation to occur between the US and its closest allies rather than just a direct sale or transfer of US systems. Congress should look to (at least for the AUKUS, Five Eyes, or NTIB nations) a means of harmonizing requirements for systems transferred under FMS and DCS/ITAR and exempt these nations from ITAR controls to enable cooperative development and production of defense systems. Just as in acquisition, US security and technology control policies were built around an era of US defense technological dominance that has long passed and these policies and processes now serve as barriers to innovation through working and cooperating with our closest allies.

Accelerating Defense Acquisition to Compete in the Wars of the Future: A Pilot Pathway

Finally, I will outline for the Subcommittee's review a potential pathway to create an alternative defense acquisition system, one that is geared towards speed and results, particularly in such areas as AI, robotics, and autonomy that are now dominated by commercial technologies. Much of the authorities are already in place, but will likely require new legislation from Congress to overcome bureaucratic intransigence by rewarding entrepreneurial behavior. DIU's current experiment with its Replicator effort to build inexpensive, attritable platforms at scale is an obvious candidate to be a pathfinder in such a project. Still, DIU faces its own problem of entrenched behaviors and closed mindedness to new ideas and there are still long odds on it succeeding.⁵

To accelerate such an acquisition system, Congress should focus on the following 5 pillars:

Pillar I: Management: Put an Organization in Charge and Give It Authority

- The Pentagon acquisition bureaucracy has evolved to obfuscate both results and responsibility and is more successful in placing barriers in front of innovation. For specific objectives, such as AI, quantum, autonomy, or new launched effects, Congress should designate specific organizations to create new operational capabilities through the use of alternative acquisition approaches. Congress and the Secretary of Defense should clear away all bureaucratic barriers for these organizations to directly use flexible acquisition, budgeting, and personnel authorities.
- These organizations should report directly to the Secretary or Deputy Secretary and be given a blanket waiver from the Secretary from all internal approval processes.

Pillar II: Personnel: Speed the Time to Hire and Limit Tenure

- To recruit the talent to staff these organizations, Congress should provide to the head of these organizations expanded personnel authorities and the ability to directly hire Highly Qualified Experts (HQE). Congress may want to create a separate Title 10 HQE authority to make it more usable for DOD. It also may want to require the adoption by these designated acquisition organizations of the DARPA 5-year employment practice that restricts staff tenure. This would incentivize achieving success in a limited time and help to prevent the establishment of entrenched bureaucratic thinking. The Secretary of Defense should delegate all necessary personnel authorities to the head of the designated acquisition organization.

⁵ See William Greenwalt, "DOD's Replicator Program: Challenges and Opportunities," testimony before the House Armed Services Committee Subcommittee on Cyber, Innovative Technologies, and Information Systems, October 19, 2023, <https://www.aei.org/research-products/testimony/dods-replicator-program-challenges-and-opportunities/>.

Pillar III: Contracting: Enable Fast and Flexible Contracting with Non-Traditional Contractors in Specific Commercial Leading Industrial Sectors

- For these designated organizations, Congress should direct the establishment of nontraditional contractor Other Transactions (OTA) consortia in specific commercial sectors, such as those identified by the Undersecretary of Defense for Research and Engineering as critical technologies. Just as was demonstrated in Operation Warp Speed that quickly leveraged a medical sector DOD OTA consortium for over \$10 billion in commercial contracts, creating specific sector-wide consortia made up of non-traditional contractors will allow for greater industrial collaboration and result in faster development times and contracting. To speed the transition of initial OTA research and prototyping efforts, the use of follow-on OTA production authority to allow for rapid, sole source contracting should be used.

Pillar IV: Acquisition and Requirements: Leverage RAA, Software, Middle Tier, and Services Acquisition Pathways

- For larger rapid fielding and serial rapid operational prototyping efforts, Congress should require the use by designated organizations of the MTA pathway that bypasses the lengthy requirements and acquisition process and mandates operational capability in the hands of the warfighter within 3-5 years. Rapid Acquisition Authority (RAA) and the Rapid Acquisition Pathway should be used for 1-2 year deployment objectives. MTA and RAA efforts with non-traditional and commercial contractors should be mandated to use OTA or commercial contracting approaches. Capability and Software as a Service Acquisition Models should be another major leveraged acquisition approach. All decision making to use the RAA, MTA, and Software Pathways should be streamlined and delegated to the head of the designated acquisition.

Pillar V: Budgeting: Support Year of Execution Budget Flexibility

- Budget inflexibility in year of execution and long lead times to allocate resources are at the root cause of our declining competitiveness and innovation failures (especially in the many versions of the Valley of Death).
- Acquisition capability efforts within the designated acquisition organization should be able to be started with rapid funding authorities in year of execution, dramatically reducing decision time.
- Congress could consider the equivalent of the FIRES Act proposed by Rep. Gallagher that would have re-purposed \$11 billion in cancelled appropriations for INDOPACOM procurement needs. It should also create additional funds to support portfolio acquisition management and bolster past funds and authorities established to repurpose expiring funds through congressionally-created accounts such as the Defense Modernization Account, the Rapid Prototyping Fund ("Section 804" fund), RAA budget authority, and for personnel shortfalls in the designated acquisition organization, the now defunct Defense Acquisition Workforce Development Fund.

Thank you again for the opportunity to testify on this important topic. I welcome any questions you may have.

Senator SULLIVAN. [Presiding.] Great. The Chair went to go to vote so I am going to take over here. Let me begin.

Mr. Schwartz, did you bring a copy of the FAR [Federal Acquisition Regulation]?

Mr. SCHWARTZ. Among other things, yes.

Senator SULLIVAN. Can I see it, or is it too heavy to lift?

Mr. SCHWARTZ. I will lift it, but Congressman, this is the complete works of [inaudible]. You also have the Federal Acquisition Regulation, the Defense Federal Acquisition Regulation, and the PGI [Procedures, Guidance and Information] for the Defense Federal Acquisition Regulation. If you work for some of the services there is more guidance and regulation, but I apologize. I ran out of paper this morning. So it will bge a little bit higher.

This is what we have to do for acquisition. Now when I was in a grade school it was hard enough for me to read William Shakespeare. This is a difficulty, and I think one of the things that this does, when we are talking about empowering the workforce, it freezes the workforce.

Senator SULLIVAN. Yes.

Mr. SCHWARTZ. At this point to tell one story about it, if I may. I remember after Hurricanes Katrina and Rita I went down with the GAO team to visit, and we are talking to a bunch of contracting officers working really hard for recovery for people, for FEMA [Federal Emergency Management Agency], and these people were working 16, 17 hour days, and at one point they turned to us and said, "Just tell us what you want. If you want small business, we will get you small business. If you want best price we will get you best price. If you want speed we will get you speed. If you want best quality we will get you best quality. We can't do it all, all the time."

One, he is right, but two, what that concerns me with is the one thing he did not mention is what is best for the people. He mentioned he is always thinking about what the regulations tell me to do and what will I be yelled at.

Senator SULLIVAN. Yes. So let me ask this real quick. If you are a company with a great innovative idea, and you have done a prototype on your own with private investor money, and you are like, all right, now I want to get this to the Pentagon, because this is going to help in our upcoming war with China, or whatever, do they have to all of a sudden understand that stack, or is that for the contracting officers, or the combo?

Mr. SCHWARTZ. It is both. Contracting officers, for sure.

[Clerk turned on mic.]

Mr. SCHWARTZ. Oh, thank you very much. Thank you. But you need to know if you need a cost accounting system. You need to know if you have to have certain small business plans. You need to know what domestic buying requirements you have. You need to know—

Senator SULLIVAN. So if you are beginning, an innovative American company, which again, in my view is a giant strategic advantage we have over everybody else, and now they are interested, these great Americans who are really innovative and really smart want to help. They see the challenges in the world. They see that authoritarian dictatorships are on the march, whether in Iran, China, Russia, North Korea, working together. So they want to help. But then they see that and they are just like, what?

Mr. SCHWARTZ. They do not. Many do not. I know a company that has a great technology, someone who worked on the Hill, and I said, "This is great. Have you brought this to DOD?" He said, "I

am not going to. It is just not worth it. We are small. We have a great technology. We have limited resources. I am not going through that," and it broke my heart.

Senator SULLIVAN. Yes. Okay. Let me ask Dr. Greenwalt. One thing that I think a lot of people miss—so I like to read a lot of history. I am reading this really good book that was actually given to me by the CNO [Chief of Naval Operations] a couple of weeks ago, called "The Admirals," and it is all about five-star admirals that we had during World War II, and the innovation, and of course that was an entire societal effort. But I think from—I am trying to remember. I do not want to get the numbers incorrect, but we cranked out, in 1942 to 1943, I think, like 17 aircraft carriers or something, and then in 1944 the numbers are incredible.

But the innovation was also occurring, as you just mentioned, in the 1950s. So we are not at like World War II levels of entire economy focus. We are in peace, with the exception, of course, of the Korean War, which is a big exception. So what happened after that? You just gave some good examples.

The other one I always like to cite is the SR-71, which I think I have read they designed on a slide rule and it came from concept to prototype in 18 months, or something crazy like that, and that spy plane lasted for decades.

So what happened? What happened between the 1950s SR-71 and the F-35 that took, I think, 25 years to field. What happened, in your view?

Dr. GREENWALT. It is a long story but I will try to summarize. In the 1960s we adopted a way of putting a system around all of that innovation, and I even kind of think about there is the good Rickover and the bad Rickover. The good Rickover was the one who essentially was of the time-based innovation approach, you know, developed the first naval reactor, if you remember how many classes of nuclear submarines were created in the 1950s, to get to the point where we wanted to.

We got to the point where we wanted to, and then we decided, well, we are going to manufacture these, and we shifted into a different system. What we should have done is had two acquisition systems, one for how to be incredibly innovative and drive new technology into the hands of the warfighter and the other was how to produce systems at scale.

But when we started producing systems at scale, Admiral Rickover wanted cost accounting standards. He wanted greater insight into contractor costs, and that is kind of, I do not know if you want to say the bad Rickover, that is just the Rickover that transitioned to something that was needed to produce things at scale. So that is one thing.

The other thing is that we adopted what were business best practices of the 1950s from the private sector, which actually were not really good business best practices, and they were based on centralized planning, based on prediction, very linear ways of thinking. They were brought from Ford Motor Company with McNamara in the 1960s, and the DOD adopted these, writ large, and we have been working on this system for the last 60 years.

But what happened was we did not quite realize that the same management system did not work out very well for the private sector. The Japanese essentially, with quality management and other approaches, essentially out-competed us, and the private sector threw out all this centralized planning. They threw out all these ways of bureaucratized linear process. But the Department of Defense never did.

So we adopted many of those processes. We essentially looked at our adversary, the Soviet Union, and mirrored some of their processes, and we created a morass of bureaucracy in the 1960s. So the thought is let's go back to the 1950s, let's go back to how we can produce things better, and create two acquisition systems that essentially can complement each other.

Senator SULLIVAN. Good. Great. Well, listen, a lot more to discuss. When you talk about imitating our adversaries I have always thought it would make a lot of sense—hopefully no Chinese Communist officials are listening right now—but we mark that giant pile “Top Secret.” They have been stealing all of our stuff anyway. We dump it in front of the Chinese embassy and hopefully they get it, and are like, “Oh, this is amazing. We will use this.” Then we will destroy the way we have kind of destroyed our system.” But maybe that would not work.

Senator KAINE.

Senator KAINE. Thank you, Senator Sullivan, and thanks to colleagues. I want to followup a little bit on where Dan started—and Peter, I liked that you called us “you guys” because you are so familiar to this Committee. I saw you slip there, and I appreciated that—which is entry points for the small innovators. If the small innovators look at that stack, or as you said, Mr. Schwartz, they are just like, “I have a capacity I could bring and I would like to but they are not going to do it.”

Talk about the efficacy of the DIUs and the AFWERX. I think Dr. Greenwalt mentioned DIUs. There is the effort to create some entry points that might be more friendly to these small innovators. Are they achieving their value? Is there more we should do to help them achieve their value?

Dr. Greenwalt, do you want to start since you mentioned that in your testimony?

Dr. GREENWALT. Yes, no, I think Congress and the Secretary of Defense need to empower them and give them the tools to do what they are empowered to do. So DIU should be given flexible hiring authorities. They should be given flexible budgeting authorities. They should be given the ability to move fast and transition these types of systems.

You know, we have the nucleus of doing the right things. We probably just need more of them, and they need to be empowered to take that there and say, let's use an OTA, which is a one-page agreement, and work with the private sector, and then eventually evolve into something better. Peter?

Senator KAINE. Please, Peter.

Mr. LEVINE. Senator, yes, I think they are helpful, and they are helpful not just because of a less bureaucratic approach. They are helpful because one of the biggest problems facing that small business is figuring out where, in the Department of Defense, to go

with the product. Just looking at 800,000 civilians and 1.2 million, or however many military we have, and trying to figure out all these different commands, who is that is going to want my product?

So if you have entry points who look like they are friendly to innovative products, that is a really good place to start, not just from a point of view of regulation but from the point of view of having an entry point.

If I could, I would like to take a couple of minutes and speak in favor of regulations, since you do not get to hear that very often. You are too young—I know you are my age so I guess I cannot say that—but you are almost too young to remember back to the beginning of the Clinton administration when Al Gore was doing his re-inventing government.

But one of the things that they did when they came in was to look at regulation, not just this, which was here at the time, but other regulations. One of the things that they actually did was, on the personnel side there was something called the Federal Personnel Manual, which was for civilian personnel policy, which was about as thick as this, and they said we are going to deal with regulation by throwing that out. The Federal Personnel Manual does not exist as of today.

The problem is that all the problems, all the issues that personnel professionals had to deal with were still there. So you had pirated copies of the Federal Personnel Manual that people still had on their shelves, even though they were not official, because they needed to figure out a framework that they could use to answer those questions.

My take on these regulations is when you are buying everything from nuclear aircraft carriers to paper clips you do not have two acquisitions. You do not even have four acquisition pathways. You have 15, 20, 50 acquisition systems, and in order to govern 15, 20, or 50 acquisition systems which are governing different types of decisions, a full range of decisions on everything from technical data rights to negotiating price to small business privileges, whatever it is, it takes a lot of words.

In fact, I have this contrarian view that if you want to give more flexibility, what you actually need is more pages, not less. The reason is if you just take away the pages then people will go into their defensive crouches and do what they have always done, because they do not know what they can get away with and what they cannot.

If you want to encourage them to do something different you need to tell them, "Here are your options and here are the things you can be thinking about as you consider those options." Then you are giving them protection to take risks, and telling them it is okay to take risks. If you are silent then you have not answered any of their questions and they go back to this is the way I have always done it.

Senator Kaine. If I could, Madam Chair, I would love to ask another question, and it might involve an answer pretty deep into my stoppage time.

I am the Chairman of the Seapower Subcommittee, and so in particular I would love any of your thoughts on ship and sub pro-

curement. Like what do you think about the way the Navy procures ships and subs, and are there big-picture pieces of advice you would offer to us as we are getting into the NDAA. There is some controversy right at the gate in the President's budget about, you know, the carrier block by sliding the reduction in *Virginia*-class at the same time as we are telling the Aussies we are going to produce *Virginia*-class subs for them.

Talk to us about your thoughts about ship and sub procurement.

Dr. GREENWALT. I think on the ship and sub side that is where the traditional acquisition system actually works pretty well. I think our biggest problem in some of our other areas is that we have tried to take the ship and sub acquisition process and apply it into areas where it is not really appropriate.

I think what we need here is we have an industrial base problem. We essentially have a workforce, supply chain, budget problem. But the way we buy things is pretty time tested.

Now, if you wanted to do new, autonomous vehicles, new technology, I would take it in a different way than how we are buying submarines today, and that is why we need multiple pathways and multiple ways of doing things.

Senator Kaine. Can I put you on the spot, Mr. Schwartz, on this question about the Navy?

Mr. SCHWARTZ. Yes, on the Navy? Absolutely.

Senator Kaine. Ships and subs.

Mr. SCHWARTZ. Yes. So a couple of things. One is the workforce of the contractors is a huge problem. If there is too much of a gap between ships that you are building you lose the welders. That is not an easy skill, right, and the cost of bringing back the welders and retraining them and losing welders in and of itself has a consequence on budget. So that is one.

The second is thinking through how we do CapEx. I remember—and this was a number of years ago—but going down to a shipyard, and everything was outdoors, right. Now, some of that has changed, but I think it is illustrative because in Asia they had already, for years and years and years, been doing a lot of this building indoors, to the point where the Navy was paying for material that was rusted because it was outdoors. The sick leave for workers, because they were doing the welding outdoors, was a cost.

Sometimes those things, in trying to save money really has the larger consequence of not saving money because of the perturbation of the workforce, because of not wanting to invest in the facility that has people outdoors. I think those are a couple.

Then, if I may, I want to get you two data points on small business and DIU and those, because you asked.

As the defense industrial base is shrinking, from 2010 to 2020, the number of companies in consortia, which primarily do OTAs, of 12 consortia that work with the Federal Government went from 365 to 5,600. It is not that companies do not want to work with the DOD. Companies do not want to work with this, because the consortia are the entry point, and does not do some of this, and I am not saying regulation is bad. You know, I do not disagree with Peter at all on that. It is how we do it.

The other point is of the 12 consortia, their membership was either 56 to 72 percent small businesses. So there are entry points. We just need to leverage those more.

Senator KAINE. Could I ask Mr. Levine, please, Peter, on the Navy ship and sub procurement.

Mr. LEVINE. Senator, you take me down memory lane because if you remember the last year I was here I believe we had an administration that cut an aircraft carrier, and you and I had to work together to figure out how to pay for that.

Which brings me to what I think is really the crux of the issue, which is we are trying to build and maintain a Navy that is bigger than we can fit into the budget we have, and that is what leads to the problem with the workforce. That is what leads to the problem with gaps in production. We are always looking for ways to build ships differently and less expensively, and we have run into problems with that where we have tried to cut corners and it has come back to hurt us.

But if there were one place that—and I know this is not going to be new to you—but if there was one place that we need to continue to look it is the lack of a commercial industrial base in this area. Because we do not buy commercial-built ships in the country anymore we have a big problem with maintain an industrial base, and if there were some ways that we could rebuild a commercial industrial base it would be an awful lot easier on us to build military ships.

Senator KAINE. As I hand it back to the Chair you sound like Mark Kelly, a proud Merchant Marine Academy graduate, who makes that point often at our hearings. So thanks, Madam Chair.

Senator HIRONO.

[Presiding.] Thank you. Having chaired the Seapower Subcommittee before, yes, that is another committee that is always pretty much frustrated. I think that is a good way to explain a lot of the challenges that we face.

One thing that did catch my attention, Mr. Schwartz, is when you say the DOD is planning to spend \$725 million in the next 4 years on systems that are already outdated. But having said that, that sounds outrageous, but isn't it the case also that by the time we figure out what systems would make sense for us to acquire and figure it out and installing it, we are already behind. We were constantly behind. Maybe the question is how far behind, how far outdated are we going not find acceptable.

But what is your answer? You gave that as, I would say, an outrageous example of inefficiencies.

Mr. SCHWARTZ. I would suggest one of the fundamental problems is the challenge DOD has after they have identified a system they are actually implementing, and that comes down to business transformation, or it can go by a number of names.

An example is the Defense Travel System. It is not, in fact, the most popular system in the Department of Defense. I know a lot of people use it, but it is not. A system was identified to replace it with a successful OTA, one that is used by thousands of companies and hundreds of thousands of people every day, a commercial system. It is huge.

They tried to adopt it, and they just gave up and said, “we just cannot do it. Not because the system does not work but because it is too hard culturally for us to get it adopted throughout the Department of Defense.” That is a cultural problem. It is not just identifying the system. It is that business process transformation that DOD does not do well.

Senator HIRONO. Is it that it does not do well because we do not have the acquisition people, workforce, that can make it happen? Is it that we do not have enough experienced people, they leave just when they get the experience that they need to make smart decisions? I mean, what it is that makes them incapable?

Mr. SCHWARTZ. I think there are a lot of reasons, but I know Peter has got some thoughts on this.

Senator HIRONO. Mr. Levine.

Mr. LEVINE. Senator, it is hard, and let me talk about DTS. I was here on Capitol Hill when a couple of attempts to replace DTS failed. I was in the Department of Defense, and I cannot remember which position, but with some responsibility for DTS when the Defense Digital Service came to me and said, “We want to replace DTS,” and I told them, “Good luck. You are not going to be able to,” and I will tell you why—because it is not a technology problem. It is not a problem of adapting a commercial technology. It is not a problem that you have a commercial system that does not work. It is not a cultural problem.

The problem is, with DTS, we have a set of travel regulations that are almost as big as this set of acquisition regulations, and so our Defense Travel System has to comply with these regulations. You can take a commercial system, with commercial technology that works off the shelf, but when you try to build into it these regulations the whole thing collapses, and that is what we have been up against over and over again.

You cannot solve the DTS problem until you solve the defense travel regulations problem. That is a corner of what you deal with, with business systems in the Department of Defense, generally. We take an off-the-shelf commercial system, an enterprise resource program, for example, an ERP, and we say this is something that business uses to run their business. Why can’t we run it? Then you discover that Defense looks different, and it works differently, and we have different systems we need to plug into different data, different requirements, and the commercial system cannot bear all of that. So we have a huge problem with adoption of commercial technology because we are different.

Mr. SCHWARTZ. I would actually disagree with some of that on DTS because DOD’s own view of the pilot program was that it was successful. While I totally agree with you, Peter, that the financial rules, which I would have printed out had I had more paper, are a problem, it is also a cultural barrier, because there was a directive that this shall be the system of record, and then the services decided they are not going to implement it.

So I think it is both. I do not think it is one or the other. I think it is both.

Senator HIRONO. So those reams of paper that you have there, that is to show what? All the requirements?

Mr. SCHWARTZ. Oh, sorry. I apologize. So what we have here is the Federal Acquisition Regulation. Now if you are in the Department of Defense you also have to follow the Defense Federal Acquisition Regulation. Then you will have the PGI for the Defense Federal Acquisition Regulation, the guidance. There is also, depending on what service you are, more regulations that could be Army or Navy specific, but as I mentioned, I ran out of paper so I could not print more, so I apologize. That was just to compare it to the complete works of Shakespeare.

Senator Kaine. Madam Chair?

Senator Hirono. Yes.

Senator Kaine. Could I just interject something? In which of those two sets of texts is the phrase "A tale told by an idiot, full of sound and fury, and signifying nothing"? Is that Shakespeare or is that the Federal Regulations?

Mr. Schwartz. I believe it is Shakespeare.

Senator Kaine. Okay. Just checking.

Senator Hirono. So, okay. What I get is that we have overregulation, or all these requirements, that we can reduce some of those requirements and still get what we need in terms of, say, for our warfighters' capabilities. So that is one. We have reams and reams of stuff that they have to comply with.

But on the other hand, I am also told that through these pathways that I talked about, six pathways, those pathways were intended to speed up the acquisition process, but that does not happen. Those are tools that we have provided to the acquisition workforce, but they are not fully utilized because we do not have a workforce willing to take smart risks.

I want to spend a little bit of time—I know I am over time but what the heck, I am the Chair. By the way, if you like a second round since we are here, you know, please feel free. But really, when we focus on the acquisition workforce the full Committee hearing also focused on a workforce that would be experienced and trained to make use of the tools that are currently available to speed up the processes, including acquisition process. So what can you tell this Committee about what to do about a workforce, retaining the kind of a workforce that is willing to take smart risks in acquisitions? Anybody?

Mr. Levine. So first I would say that a fair amount of the problem that you identify with using different acquisition pathways is leadership direction rather than the acquisition workforce. So we need to be clear. I think we have a very talented acquisition workforce and we do not want to run them down too much. We do have a problem with recapitalizing and rebuilding and retaining and building on expertise.

When I was on the Committee 15 or so years ago I think one of the things that we did that was the most important the whole time I was here that I worked on was creating the Defense Acquisition Workforce Development Fund. The reason I say that is because we neglect our civilian acquisition workforce. We spend hundreds of millions of dollars every year on military recruiting, on military training. We plan for our military strategically. We think about what talent we are bringing in today, not only in terms of filling the job today but where are they going to be in 10 years and 15

years and 20 years, and how are we going to have the expertise that we need.

On the civilian side we do not recruit, we do not systematically retrain, we do not take advantage of the training when we send people to training. We bring them back and we put them in jobs that do not relate to the training that they had. We do not plan career paths. We really neglect our civilian workforce.

Yes, we can do more there with the resources we have, but it really is an area where we ought to think about more resources, and we ought to think about reinvigorating the Defense Acquisition Workforce Fund or creating something similar, because it is a pervasive problem, the underfunding and the neglect of the workforce.

Just to put it in perspective, my wife, who is a civil servant, used to come home with computer problems, and my son would look at her and say, "I can't believe that they are paying you however much they are paying you and you have a problem with a \$300 computer, and they won't just replace it. That is 2 hours of your time and the Federal Government won't do that."

It is the same thing with the investment that we put into the civilian workforce and other places, in recruiting, in training, in career paths, in building quality and making the workplace an attractive place to work. A small amount of investment would go a really long way there.

Senator HIRONO. Well, I would like to identify, how many people are in the civilian workforce part of the acquisition workforce?

Mr. LEVINE. Well, the acquisition workforce is somewhere in the order of 150,000, and it is predominantly civilian.

Mr. SCHWARTZ. But if I may, we also do not always put people in positions to succeed. I will give you an example. There was, I believe it was a lieutenant colonel, and this is going to the uniformed personnel example that Peter was talking about in his statement. He was doing his first stint as a program manager on an IT system for logistics. So I said to him, "Oh wow, this is great. It is your first program manager position. That is great. So you must have experience in IT." He said, "No, I never did IT before." "Okay, but you have done logistics." "No, never did logistics before."

We did not put him in a position to succeed, and that is a problem.

Dr. GREENWALT. Can I follow on to what Peter said?

Senator HIRONO. Certainly.

Dr. GREENWALT. I think Peter was being way too modest about the Defense Acquisition Workforce Development Fund. That was probably the most significant piece of legislation this Committee passed to improve the acquisition workforce, and unfortunately about 3 or 4 years ago that fund was abolished and replaced by something else, which is not even capable of doing what is necessary. I think the recommendation that I would make—and I do not know if Peter would make too—is to reestablish that funding mechanism, because that funding mechanism was very unique and clever in the way it took expiring appropriations or took a tax on expiring appropriations and brought that money in to pay for training and new hires and things like that. It worked well for at least 10 years.

Senator HIRONO. Okay. I know I am going to need to go and vote soon. I do not know if you do also. I understand that Senator Sullivan is coming back. I assume he wants a second round. You may want a second round.

But really focusing on what we need to do in acquisition changes, I understand that we need to do better with the civilian workforce. I also understand we need to do better with the military workforce. So if you were to focus on just on the workforce, I would very much appreciate some very specific things that we should be doing to empower the workforce to take what I would call smart risks, understanding that smart risk is also in the eyes of the beholder. It is not that easy to define.

But I do understand that there are some specific things we can do to train our workforce better, to retain them, and those things. So if you can provide us with some specifics, which I think you did—staff has them—we will followup with some specific changes that we can do.

What to do with the \$700 million we are going to spend on our outdated system I am not quite sure what we can do on that, but we will certainly give it a whirl.

Did you want a second round of questions?

Senator SULLIVAN. Oh, I have like 20 more questions, but I am good, and I voted twice so I am ready to cover for the Chair if she wants to. Is that over to me, Madam Chair?

Senator HIRONO. Yes.

Senator SULLIVAN. [Presiding.] Okay. Mr. Greenwalt, or Dr. Greenwalt, I want to just followup, and this is for all three of you. This idea, and I have heard it a lot, and I think it makes a lot of sense, the idea of maybe a two-track system, and, you know, you have the system that you need. It is kind of a command economy system that you need to build a sub or an aircraft carrier. Okay, we all get that, and that has its own processes and everything.

But another track that would be much more focused on speed—although the first track should be focused on speed too. Could you elaborate on that a little bit more, and any other witnesses who want to, if you think that is a good idea.

Dr. GREENWALT. I would be happy to, and I think the acquisition pathways that DOD has come forward with actually is trying to do that. So the major capability area pathway is exactly what we were talking about as far as the submarines and the large legacy production of things that we are going to continue to produce as platforms in the next few decades.

Senator SULLIVAN. There is no giant market for subs, right? I mean, there is one buyer. I mean, well, maybe a few buyers.

Dr. GREENWALT. It is a different industrial base problem. It is a different acquisition problem. Now yes, efficiencies can be had, but a lot of it is just dealing with the industrial base and addressing throughput in budget, and long-term, multiyear type procurements would be something that would be helpful there.

In the innovation side, that should be a time-based innovation process, and we have two pathways, actually three pathways that could be helpful there—the rapid acquisition pathway, which is the pathway that was created essentially with congressional authority in the early 2000s to deal with post-9/11 wars in Iraq and Afghani-

stan, and those were designed to deploy capability of the warfighter in less than 2 years.

Senator SULLIVAN. Okay. Is that working?

Dr. GREENWALT. It has worked in the past.

Senator SULLIVAN. A few times.

Dr. GREENWALT. A few times. The key thing there is it has the ability to start things without a new start authority, and it has flexible funds to move forward on those type of starts.

Probably in that area the most important thing would be is to bring the combatant commanders into the equation more than they are, and potentially even to think about some type of limited acquisition authority for them to drive some of that change, or at least some type of limited demand.

Senator SULLIVAN. So that is authority you think they have, that they are not using?

Dr. GREENWALT. They do not have that authority.

Senator SULLIVAN. Oh, they do not have it.

Dr. GREENWALT. The combatant commanders do not have the authority. SOCOM does and Cyber Command has it to a degree—

Senator SULLIVAN. So give it to other combatant commanders.

Dr. GREENWALT. But the geographical commands do not.

Senator SULLIVAN. Was that a good idea for this year's NDAA, for example?

Dr. GREENWALT. If you did you could create authority like we had with JFCOM. Joint Forces Command was designed to essentially buy on behalf of the geographic commands and drive innovation into the geographic commands.

Senator SULLIVAN. Should we give that to every combatant commander?

Dr. GREENWALT. You could do that. They may not be able to handle it, but at least some should pilot it and think about the possibility of doing that.

The third pathway is middle tier, and middle tier is the 3 to 5, and again, that authority, if you give it to the right organizations and they can drive innovation, we can be seeing that—

Senator SULLIVAN. But again, didn't we already provide that authority?

Dr. GREENWALT. You have provided that authority, and it is being used probably about 1 percent of the budget is now being used middle tier. I mean, that is where we are.

Senator SULLIVAN. Any other thoughts on these two questions, gentlemen? Mr. Levine?

Mr. LEVINE. Senator Sullivan, yes. You are absolutely right. We need at least two pathways, and as Bill has been talking we do have—

Senator SULLIVAN. Or maybe more than two?

Mr. LEVINE. We have a lot more than two, and that is a good thing, and we are underutilizing some of them. I think that is all fair.

The one that I would point you to is the software acquisition pathway. I think that there is a lot more that we need to do in that area. Software is unique. We need to buy it different.

Senator SULLIVAN. Almost the flip side of a carrier, right, because software you are updating every 6 months, right, and you have to—

Dr. GREENWALT. Maybe every 6 days.

Mr. LEVINE. You are updating frequently, and this is an area, particularly you mentioned the PPBE Commission earlier, where there is a recommendation in there that I would point you to, which is as you update software frequently you are going through development, procurement, testing, debugging, redevelopment, reprocuring, refueling, going around that and around that and around that. If you use the traditional funding system that means you are changing color of money maybe several times in a year. To get that right and have the right color of money—I assume color of money is good—and to have the right color of money at the right time and in the right place is almost an impossibility.

So what we say is let's have a different rule for software. If you are buying software with O&M, go ahead and develop it and test it and field it. If you are buying it with procurement, same thing. Go through the entire cycle and just stay in the same color of money because we know software is different and you have to be able to go through that.

Senator SULLIVAN. Like a private company would.

Dr. GREENWALT. Absolutely. You are not going to have to go back and ask Congress, because I went through a new cycle where I am debugging something and now that counts as development and I need to get a different color of money.

Senator SULLIVAN. That is one of your big recommendations?

Mr. LEVINE. It is a small recommendation.

Senator SULLIVAN. Well, it sounds pretty substantial. That authority does not exist right now?

Mr. LEVINE. No, it does not. There is some—

Senator SULLIVAN. That would have to be legislated.

Mr. LEVINE. It would have to be—it is complicated. So it in the Federal Financial Regulation which you would say is just legislative. In fact, it is sort of dictated by the Appropriations Committee. So you risk getting crossways with the appropriators who feel strongly about how their money is spent.

Senator SULLIVAN. Yes, that happens here a lot, as you know. Okay.

Mr. Schwartz, any other—

Mr. SCHWARTZ. Yes, I will just add two things. One is I have seen that problem with the budget and IT systems, and even not IT or software all the time, and it has a lot of impacts. One is schedule, of course. But the other one is the time it takes to figure these things out. I remember being in a meeting with two programs. One had too much money, one had too little money, because of their schedules, in the same PEO office, and they could not move it. So in an hour and a half meeting, probably 45 minutes was spent on how do they deal with these issues, and that has these knock-on effects.

Mr. LEVINE. Senator, if I could just add one other thing on software. I worked with the Defense Innovation Board's Software—I cannot remember, SWAP. Def Swap Acquisition? The Software Acquisition Process study, whatever they called it, and they had a

recommendation for a separate software acquisition pathway, which Congress adapted.

There was one piece of their recommendation that Bill and I actually worked on together, which I thought was very important, which Congress did not adopt. I have it in my testimony, but I think it is worth mentioning here.

The issue is that you have some software engineers and developers who are much better and more productive than others. The way our Federal acquisition system works, when we run a competition price has to be a factor, and when price is a factor for something we do not know what we are going to build yet, the way we consider price is by considering rates. So if Company A is going to charge me \$300 an hour for an engineer and Company B is going to charge me \$250 an hour for an engineer, that looks less expensive. Of course, the \$300 engineer may be 10 times as good, and proving that and justifying going to the high-priced contractor is hard.

What we recommended is that this is an area where we need to learn the lessons that we learned 50 years, 40 years ago, with architect/engineer contracts, where we said let's do a competition initially, in certain circumstances where it is appropriate, just based purely on qualifications, and get the best guy in here to do the job, because this is software where it is really critical software, and I want to have the best guy. So I am going to do a competition based on qualifications, and once I get the best guy in then I will negotiate a price with him.

Senator SULLIVAN. Is that in your recommendation?

Mr. LEVINE. It is, and we do that for architects and engineers on the theory that if you are building critical infrastructure you do not want to go to the low-price bidders to design it. You should have the same thing. You should have that same authority for software.

Senator SULLIVAN. Let me ask one more question before I turn to Senator Kelly. This issue of the valley of death, and again, I think this is a giant strategic opportunity for us now that we have all these tech companies and innovators who really want to help on our national defense.

I know it is a complicated issue. I hear it from so many, and I am sure all of you do too. What would you, in all of your vast experiences, A, do you agree with me that it is a big problem—and it is also an opportunity that we have, again, this part of our economy that wants to help the Pentagon. Then what would you give to us as kind of the top three pithy recommendations, and are they regs or is it authorities that we need to provide?

I will just open that up to all three of you.

Mr. LEVINE. Senator, let me just take that one too, at least to start, because this is something the PPBE Commission spent a lot of time thinking about. This deals with how we fund things, and there are two different ways that the PPBE Commission went at this.

One is the question of the way the budget is structured. So we structure our budget into such small boxes that it is hard to move money around, so it is hard to make it available if we have an opportunity that shows up in the year of execution. So the technology

suddenly is proven and we do not have any money in the right box so we cannot make it available.

Senator SULLIVAN. And that company goes out of business.

Mr. LEVINE. The company may go out of business, exactly. So we have budget structure recommendations that talk about structuring the budget differently so that money is more flexible.

We have reprogramming recommendations which talk about making it easier to move money if you need to, at the last minute. We have smaller recommendations like the software recommendation I just mentioned to you, about relieving some of the pressure on software. That would make money more flexible. We have recommendations about delegating further down within the Department of Defense, so things the Department can do itself, delegating further down within the Department of Defense, writing budget justifications more clearly. All these things can provide more flexibility in the year of execution, which could make it easier to move money, which can make it easier to solve problems like that.

The one thing I would add to that is I do not want to make it like this is a complete panacea, because a part of the problem will always be is there enough money.

Senator SULLIVAN. Yes.

Mr. LEVINE. Where do we find the money? So it would be nice if we could commit to all these companies, if your technology proves out we will fund it. But we do not have enough money to make that commitment to all those companies, and sometimes it proves out and we have to look at it and say, "Well, it would be nice to have but I don't have money for it."

So the problem will not go away even if you make the process easier, but we ought to take out some of these hurdles that we have got in the system.

Senator SULLIVAN. Okay. Any other quick thoughts on that?

Dr. GREENWALT. Yes. I think the Department of Defense needs to start looking at this as a venture capital firm. There is a valley of death in the VC world from Round A to Round B to Round C to Round D, and we could be looking at the same thing for initial prototype, advanced prototype, operational prototype, and so on. There should be bridge funds between every one of those, just like a VC would, and if something hits, we are going to spend it on this, and it is flexible enough to do that.

I would bring together, like the VCs do, which essentially is they compete. I mean, the companies are competing for their money all the time, I would bring the entire industrial base, if it is possible, into an OTA consortium, a non-traditional OTA consortium, to do that, where you could essentially drive Round A's, Round B's, Round C's, Round D's, different types of competitions within that industrial base for the type of programs necessary.

Because if they hit then you can just go to the next bridge fund and say, "Okay, this is C round. We are going to go for it." If you do not have enough money in your D round funds, well, then everyone is just kind of going to go away. But if you have got that money that is flexible enough to put on the table if someone succeeds, then you have got something.

I have to say, the most successful OTA we have had was with SpaceX in the sense that we promised that they would essentially,

if you can build it we will pay for it. MRAPs [Mine Resistant Ambush Protected] were the same way. If you build it, we will have money to put on it. That offer of some kind of potential payoff is what will leap over the valley of death, but if you do not have it you are always going to have a valley of death.

Mr. LEVINE. I will say that I can remember sitting in DMAGs—this is the senior DOD budget decision forum—and having the group make a decision, we are going to fund these dozen different experiments in an area, and having the Under Secretary of Defense for Acquisition stand up and say, “I am all for funding these. It is the right thing to do. But you all should know, if they are successful we don’t have money to field any of them.”

Mr. SCHWARTZ. So three things. Let me perhaps suggest guiding lights. But before I do, to reiterate one thing Peter said. This is very hard. This is very complicated. I would suggest no three ideas will absolutely solve the problem. It is a lot of ideas and a lot of effort and a lot of ways over time. It is very complicated.

But some guiding lights, if I may offer.

The first one is you mentioned, Senator, all these VCs and other companies that want to help. They also need to run a business, and sometimes DOD does not recognize cash-flow and profits matter to these companies. If they cannot make money, if they jeopardize their commercial markets, they are not going to stay in this business, and we will lose them. There is a reason why the defense industrial base has decreased in size for the last 12 years.

Second guiding light. Time matters for these companies. They do not have the luxury that DOD does of saying, well, we are going to delay delivery because this part is not qualifying, when it is not a safety issue. That is a problem. Time for delivery, time to contract. In this warp speed, which was another successful OTA, in fact, General Perna said, “Warp speed—it wouldn’t have gone at warp speed without an OTA” in that particular case, which was his exact quote. Time matters to companies, and DOD does not always appreciate that.

The third thing I would say is relationships matter to industry. You know, sometimes industry has a setback. Sometimes DOD gets a setback. But it is not about always what is the letter of the contract or the law but how you work together, and I would suggest they could probably use a relationship therapist sometimes.

Senator HIRONO. [Presiding.] Senator Kelly.

Senator KELLY. Thank you, Madam Chair. I want to just followup a little bit on this. Thirty years ago, when I was at the Naval Postgraduate School, I had one elective, and I took an acquisition elective, and I was shocked at how complicated this whole process was. I mean, it seemed to be more complicated than most any other class I had, and I was there as an aeronautical engineering student.

I would say over 30 years I think we have made some progress here. I mean, SpaceX is one example; I am not sure we have another. Maybe you could share, Dr. Greenwalt, if we do have other examples, and I am perfectly willing to take the blame here for Congress, but has this been a failure of Congress not to be able to innovate fast enough in acquisition, or is it just entrenched interests at DOD and maybe some of the big defense contractors? Like

what has been the big stumbling block to actually making significant progress in reforming the system?

Mr. LEVINE. Senator, before you take blame for Congress for 30 years ago I should confess that Bill and I met 30 years ago when we were on congressional staff together working on this problem. So we are to blame. We worked together. The first thing we worked together on was the Federal Acquisition Streamlining Act in 1994—

Senator KELLY. Did it pass?

Mr. LEVINE.—which passed, and which was the first major congressional effort to streamline commercial purchasing. So this is an issue that Congress has been battering its head against for decades now. I think we are making progress on it. I think we are better at it than we used to be. But it is hard.

I just need to come back around to there are things we do to make it harder, and Bill and I both discussed some of these and have some recommendations in our prepared statements about reducing unnecessary requirements and peeling back some of the buildup. So in 1992, we said produce a streamlined contract for commercial contracts where you eliminate clauses that are not necessary and should not apply to commercial companies. We got down to a certain number, and then over 30 years it has built up again, and it is time to relook at it.

But do not underestimate how hard it is for the Department to buy commercial technologies, because it is all great that these technologies are out there in the commercial marketplace and that are available to us, but the experience over a period of decades is it costs more and takes longer to take a commercial marketplace and apply it to defense uses than it does to build it in the first place. It is really hard work.

Senator KELLY. I was at the ribbon cutting last week at the Southwest Mission Accelerator that we procured money to build five of these around the country. I think there is one in Hawaii, Oregon, Kansas, some other location somewhere, and it is to try to help some of these entrepreneurial companies get across that—maybe not get across the valley of death but even the stuff that is more up front and connecting them with financing and expertise. Do you see something like Southwest MAC or these other accelerators to be helpful in this process?

Dr. GREENWALT. I think what is important is, and in as many ways as possible, bring together that non-traditional industrial base so the government can essentially work with it.

The other example I will give as far as success is Operation Warp Speed. Why was that successful? Because we brought together the non-traditional medical industrial base in one acquisition vehicle, and it was ready when an emergency hit. We should be doing that with every single—

Senator KELLY. Was that done before the pandemic?

Dr. GREENWALT. It was done before. It was it was not done before pandemic we would probably still be trying to figure out what kind of acquisition vehicle to use to develop a vaccine. I mean, that was essentially—

Senator KELLY. So that was all stood up and ready to go.

Dr. GREENWALT. It was stood up and ready to go, and it was bumped by accident. But it was the right vehicle to be able to put a lot of money through in research and do it fast. We have a traditional system, and we can go slow in a lot of different area, but we should have emergency vehicles ready to go if things happen that we need to go with, and I think that one was one of those success stories.

Peter talking about success story on commercial item acquisition, it is a lot different system than it was pre-1994. That is a positive thing. We backtracked a lot, but we still are buying, to a great degree, a lot of commercial items, and that is a good thing.

Mr. SCHWARTZ. If I may, Senator, there is a lot that has improved, substantially. So a lot of us are talking about what is not going as well as we would like, but there is a lot that is going very well. Defense Acquisition University was established. Even all these regulations that Peter mentioned, there was not even centralized regulations. We have a more professionalized workforce. If you even want to look at the data, the cost growth is not higher than it used to be historically, really far back, even though the systems are that much more complicated with that many more technologies.

You could go to the Civil War—and this is true. Congress put out two 1,100-page reports, and the things that they talk about that happened would never happen in our current acquisition system. A lot has been done. I think what we are talking about is how we can do more and do better because of the geopolitical issues that we have.

Senator KELLY. You are talking about bad things that happened during the Civil War in acquisitions?

Mr. SCHWARTZ. Yes. Absolutely.

Senator KELLY. Can you give us an example?

Mr. SCHWARTZ. Yes. Lame horses, horses that actually you could not ride. Food that was, in effect, spoiled. Cannons that, in fact, would not fire, I guess would be the term. There was even one—I will not go into that one. But things that actually would be shocking to see today, but now we are able to do logistics overseas in Iraq and Afghanistan at a level that they could not even do 30 miles away. So there has been a lot of progress, and I do think that is important to highlight.

Senator KELLY. All right.

Mr. LEVINE. Senator, if you would like I would just put in a pitch for one other thing. As we try to deal with non-traditional contractors, and they face this stack of regulations, the Federal regulations, and they also face the problem of not knowing even who to talk to in the Department of Defense, it is a vast and imposing organization. One of the things that I have learned on a project that I am working on right now is that really helpful to non-traditional contractors when they want to do business with the government is to have sort of a sherpa to take them through it, somebody who knows the process. Who knows the process? People who have left government and understand how the process can work.

We have regulations on post-government employment that make it harder and harder for them to do that, and there are reasons why we have limitations on what people can do after they leave government. But I would urge that you need to think about what

the impact is on the non-traditional contractors especially, because they need those people to guide them through this morass and tell them, "Here is who you need to go to talk to. Here is the kind of paper you need to do. Here is what you are getting yourself into if you do this," and who can be honest guides to that.

Senator KELLY. Thank you.

Senator HIRONO. Senator Sullivan.

Senator SULLIVAN. I just had one final question, and this can be for everybody. Mr. Schwartz, can you discuss some of your findings on the other transactions, consortia, and whether they lower the barrier to entry for non-traditional defense contractors?

Mr. SCHWARTZ. Yes. Absolutely, and a lot of the credit for those authorities are for the other people here. But I will give you a couple of examples.

We already went through the data of how the number of companies in consortia have increased dramatically where, at the same time, the defense industrial base has decreased. The way Operation Warp Speed worked is that a consortium was put together. A consortium, in short, is a number of companies, all with a similar interest around a particular technology, in this case health, because it can be a broad thing. There were a lot of companies, and they had been working together already, and they already had existing base contracts with the Department of Defense, in this particular case. So they already know each other. They already have the mechanisms. They already have the processes and the relationships down.

So what happened here, with Operation Warp Speed, DOD said this is what we need. I might get the numbers a little bit wrong, it is in this report that I have on consortia right in front of me, in something like 72 hours, I think it was, they got out requests to something like 1,100 companies. In days they get responses because it was already set up. That helps with the market research, and it helps with the processes, so you do not have to start going through this because it was already put in place.

That is the power of what consortia can do. It increases communication between the government and industry. It increases the ability to work more efficiently because most consortia work with other transaction authorities, and other transaction authorities, for the most part, are exempt from most of the regulations in the Federal Acquisition Regulation.

Now it is not for everybody, and it is not for all circumstances. It is definitely not a silver bullet. But it does do that, and there are small companies that have said—and I can absolutely provide this information after the hearing—but for the consortia they worked with they never would have contracted with the Department of Defense.

Does that help?

Senator SULLIVAN. Yes, very helpful. Good. Well, thank you, Madam Chair.

Senator HIRONO. Can you just tell me a little bit more about what you mean by consortia that are already set up to push the kind of—

Dr. GREENWALT. I will start with the other transactions because another transaction is essentially not a contract. It is a contract

but it is legally defined as not a contract, and because of that—it is very confusing—because of that it does not have to apply to things that apply to a contract. So it is a new business relationship that the government can enter with the private sector, and essentially negotiate any type of relationship they want.

So a consortium, essentially, what that does is brings together, in a vehicle, a way of bringing as many contractors as possible onto that consortium, into a certain area. Then what you can do with that consortium is task it to do certain things, very simply, not through this process but through a process that may be like this.

Senator HIRONO. So you are saying that the DOD can create these kinds of consortiums as it did in Operation Warp Speed, depending on what it is that is defined as the need. They can already do that. Is that what you are saying?

Dr. GREENWALT. They have the authority, and they have done, what, about 40 of them now.

Mr. SCHWARTZ. Yes. They, in fact, do it.

Dr. GREENWALT. But what is necessary is a lot of these are in traditional defense sectors, and there are a lot of non-traditional defense sectors like AI, or quantum, or autonomy, where it would be a good idea to set these up and pull together new small businesses, new non-traditional companies, so the Department can start working with them. They can work with them on a set of frameworks that is not based on this but based on something that is more commercially available and understandable to these companies.

Mr. SCHWARTZ. It does two things. I mean, it does many things, but two that I would like to highlight. One is it sends a message, this is what DOD is interested in, or any other agency, and those companies start gathering around that technology—like undersea; undersea would be an example of another one—and they get together. What is great is it is not small businesses. It is not non-traditionals. It is not large contractors. It is all of them in that milieu of innovation, which is very valuable.

The second thing it does is it really creates a catalyst for better back-and-forth communication with DOD, of what do you really need. Sometimes DOD will put out an RFP and they will be surprised—and there is an example, actually, in the report I mentioned—that nobody responded, and then in this consortia mechanism there is a wait for better communication, where industry is freer to communicate back, and like, oh, okay, we got it. We can craft something together, and then they get to better results.

Mr. LEVINE. Senator, at the basis of it, a contract that you can only enter with one company, that is why we have prime contractors and everybody else is going to be a subcontractor. Because the usual contract rules do not apply to OTAs, we can enter an OTA with a group or a collection.

By the way, I would add to that it is not just companies. It is also research institutions.

Mr. SCHWARTZ. Right, and academic institutions.

Mr. LEVINE. Academic institutions are included in these too, and then they can informally get together and talk about what the best use of money is and consult with the government as to where funding should go to address the purpose. It gives you some of the flexi-

bility that we talked about, that our budgeting system denies in so many ways, because once the money is allocated to a consortium there is a lot of flexibility to where you move it around to best purpose.

Senator HIRONO. So you were on the Commission, right, that we heard from this morning in the full hearing.

Mr. LEVINE. Yes, Senator.

Senator HIRONO. So I do not know that there was any discussion about we should create these kinds of entities called consortiums to address some of the needs of DOD. Was there some discussion about this kind of way of doing things?

Mr. LEVINE. The Commission did not go into consortia, and largely because there have been lots of commissions on acquisition reform, and we were focused on the budget side of the way the Department works. We had some recommendations that go to the same kind of thing, talking about the level to which we budget and the different boxes that we put our budget into, being so small and inflexible, and getting bigger boxes and different boxes and better-refined boxes to give greater flexibility.

Senator HIRONO. Yes, but it sounds as though creating these kinds of consortiums would be another way that we can get to the kind of acquisitions that would be faster.

Mr. LEVINE. It is helpful, but we should realize—

Senator HIRONO. It is not the answer to all of our problems.

Mr. LEVINE. Consortiums are usually used in, I would say, to the 99th percent—you can disagree with me—for research, and usually advanced research, and that is where the consortiums have focused.

Senator HIRONO. Yes, because I was wondering when we were going to talk about AI and all of those aspects of what the DOD and everybody else is concerned about these days.

Well, I notice that I am the only one left, so I want to thank you all for a very stimulating testimony. We will be doing some followup from my office with those of you that we need to continue to talk to. But I find the consortium idea very intriguing. I would like to think a little bit more about that.

But I do have one question about the stack of papers that you all have. Now at some point the acquisition people who have to comply with all of those requirements, I mean, after a while don't they have enough experience that they do not have to resort to all of that. They know that they can skim over or be smart about what they need to be doing so that they are not hide-bound, like all of those requirements, and through experience they can take smart risks?

Mr. LEVINE. Yes, Senator. For any given type of procurement and any given type of issue you are going to be looking for what is on page so-and-so of this. Nobody reads through this whole thing. I doubt anybody has ever read through this whole thing, unless Moshe—

Mr. SCHWARTZ. I have not, actually.

Mr. LEVINE. Okay. You are the only person I ever thought might. What you do is you look for the answer to the specific question you have, and about 15 or 20 years ago this was supposedly all rewritten—and since I have not read it I cannot guarantee that it was—

to separate between what is called “direction” and “guidance,” so that only those words that needed to be directive are directive, and the rest of it was going to be informative advice and consideration, so it would build more flexibility into it.

I cannot tell you how successful it was in being rewritten that way, but I made the point before, if you are going to rewrite it that way so it is more flexible it probably makes it longer, because when you give somebody guidance and talk about here are all your different alternatives, you have got to lay out choices and explain considerations, that is a lot harder than just to say here is the rule, you can only use a fixed-price contract.

Mr. SCHWARTZ. I will say two things. One is even though—and you are absolutely right—people only necessarily need 150 if they are doing commercial buying or something like that, at some point the brain shuts down, right. This is true if I am told to go buy cereal, and I go to the supermarket and see how many cereals they have, I just need someone to tell me which cereal to buy because I cannot compute that many choices. There are too many choices.

I have dealt with contracting officers who just revert back to the three or four authorities they know, because even though there are 17 or 18 authorities, they cannot compute that many, so it does not matter you gave them more authority. They are just going to keep doing the same thing.

So I would argue sometimes less authority is, in fact, more authority.

Senator HIRONO. Well, based on this morning’s hearing also, the idea of having people who take smart risks is not to minimize all risk, but to take the smart risk that is necessary to get us the decisions that we need.

Thank you very much for your time and testimony. This hearing is adjourned.

[Whereupon, at 3:39 p.m., the Subcommittee adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR ELIZABETH WARREN

SWEEPING

1. Senator WARREN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, according to a Department of Defense (DOD) memorandum issued by former Director of Defense Procurement and Acquisition Policy Shay Assad, the practice of contractors submitting cost or pricing data after negotiations close (known as “sweep” data) is a major cause of inefficiencies in the acquisition system. What advantages do contract officers’ gain when contractors submit “sweep” data?

Mr. LEVINE. Contracting officers who receive cost or pricing data generated in the final days before the conclusion of price negotiations have the advantage of knowing whether any last minute changes—for example, new price information received from subcontractors and suppliers—are likely to lower costs and should result in a reduced contract price.

Mr. SCHWARTZ. Contractors are required to certify that the cost or pricing information provided to the government is current, accurate, and complete as of the date of contract signing. Because there is a lag between the handshake agreement on price and contract signing, contractors conduct a “Sweep” to capture information from that period.

A “Sweep” also ensures that anything that was not progressively disclosed during negotiations (such as a rate change or impending rate change, or negotiation of a supplier Purchase Order or updated supplier pricing), is disclosed to the government and incorporated into the pricing for the Contracting Officer to review and adjudicate.

Data in the “Sweep” may not have been available or accessible to the contractor previously, for example when updated data is received from subcontractors or when new data was generated after the handshake on price (as when another contract or new supplier prices occur). While this type of “Sweep” does take time to adequately perform, it ensures that Contracting Officers have the most recent and up to date cost or pricing data upon which to determine a fair and reasonable price pursuant to both FAR 15 and DFARS 252.215 guidance after negotiations are complete.¹

Data provided as part of the “Sweep” process can be adjudicated. After receipt of the data, contracting officers can re-open negotiations if the data shows that the price agreed to was materially higher than what the new cost data shows, resulting in a decrease in price.

Generally, when the “Sweep” data supports an increase to the negotiated price, an adjustment is often not made to adjust the price upward. As such, “Sweep” data generally inures to the benefit of the government and not to the benefit of the contractor—even when the contractor was unaware of and was unable to get the data until after price agreement. To the extent that “Sweeps” are used to adjust prices down but not up appears to violate the “fair and reasonable” standard that is intended to be equally fair to the government and the contractor.

This and the related questions on “Sweeps” raise important issues ripe for further analysis. We appear to be operating in a policy environment without robust data. Perhaps Congress could support a study, to include the following data:

- Why is cost and pricing data submitted after handshake on price?
- Why is the requirement for cost data based on the contract date as opposed to the date of handshake?
- What is the average number of days/weeks of delay, and the source of such delays (are the data emanating from subcontractors, the prime contractor)?
- The nature of the updated data
- How often does data from sweeps result in a reduction to the negotiated price? In an increase to the negotiated price?

Dr. GREENWALT. Contracting officers could theoretically gain greater exactitude in pricing if provided with instantaneous real time data output from contractors that would correspond to the thesis of better using sweep data. The reality that is a conclusion of the 2018 Assad sweep data memo is that “untimely” sweep data may be indicative of estimating system issues. That is a hardly surprising. The government when using TINA (or the Truthful Cost or Pricing Data Act as it is now called) for covered contracts requires Federal contractors to develop a unique accounting system that exists nowhere else in the commercial marketplace for what may be the most regulated business endeavor in the world. The TINA-CAS contract system is as unique as it is cumbersome and methodical and is extremely costly to implement. It is geared for eventual accuracy not timeliness. To get data in real time rather than rely on sweep data would likely require significant costs and frankly because of reporting time lags within business units and from subcontractors may not even be possible to meet the objectives of the Assad memo. As such the government in these cases will need to rely on after the fact DCAA audits and self-reporting by the contractors. As contractors may be held liable for making false or fraudulent claims under, for example, the False Claims Act, the anti-fraud provision of the Contracts Dispute Act, and the Program Fraud Civil Remedies Act they are under a great incentive to comply.

2. Senator WARREN. Mr. Levine, what disadvantages do contract officers have to bear when contractors submit “sweep” data?

Mr. LEVINE. Contracting officers who receive cost or pricing data after the conclusion of price negotiations have the disadvantage of having to go through the data and assess it for potential impact on cost and price. The need to do this analysis (and possibly to conduct additional negotiations) could delay the award of a contract and the delivery of needed products or services.

3. Senator WARREN. Mr. Levine, do contractors usually have a reasonable amount of time to provide cost or pricing data to the contract officer during negotiations?

¹FAR 15.403–4 requires the Contractor to submit a Certificate of Current Cost or Pricing Data in the format specified in 15.406–2, certifying that to the best of its knowledge and belief, the cost or pricing data are “accurate, complete, and current as of” the date of agreement on price or, if applicable, an earlier date agreed upon between the parties that is as close as practicable to the date of agreement on price.

Mr. LEVINE. The timing of the final delivery of cost or pricing data in connection with price negotiations is driven by the Truth in Negotiations Act, which generally requires covered contractors to certify that they have provided cost or pricing data that is “accurate, complete, and current” “as of the date of agreement on the price of a contract.” Consequently, a contractor must update cost or pricing data to the date on which price negotiations are concluded, even if the contractor has timely provided earlier versions of such information during the course of negotiations. Because a false certification is subject to criminal penalties, contractors may feel the need to conduct post-negotiation “sweeps” to ensure that due diligence has been exercised in meeting the statutory requirement.

I have long believed that the best way out of this problem, in an era when virtually all data are electronic, would be for contractors to provide the government with real-time access to relevant data in their business systems, and for the government to accept such access as meeting the statutory requirement. It is my view that current technology should make it possible to allow government access to relevant data without compromising other, confidential, data in contractor systems.

4. Senator WARREN. Mr. Levine, what remedies does a contract officer have to adjust a contract price after negotiations for the contract have concluded and after “sweeping” has occurred?

Mr. LEVINE. If the contract has not yet been awarded, the contracting officer has the option of reopening price negotiations and insisting on changes based on the updated information. Of course, this approach could trigger the need for yet another “sweep” of data when those supplemental negotiations are concluded. If a contracting officer discovers undisclosed data that could have a significant impact on contract price after a contract has been awarded, the Truth in Negotiations authorizes a reduction in price based on the submission of defective data.

5. Senator WARREN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, are prices ever changed after a contractor submits “sweep” data?

Mr. LEVINE. I have no first-hand knowledge on whether, or to what extent, such changes have taken place.

Mr. SCHWARTZ. Yes, prices are changed based on the disclosure of “Sweep” data. When the contractor provides disclosure data that have material impact to the price as part of the “Sweep” process, there may be further adjustment to the negotiated value—pursuing such adjustment is at the discretion of the contract officer. This sometimes results in a reduction of the negotiated price, which puts the Government in the fair position they would likely have been in had the data been available prior to the handshake agreement on price. While I have no personal knowledge, there is concern that some companies are thought to have held out providing new data until after price agreement in the hopes that the Government will not use the data to reopen price discussions. If and to the extent that some companies do this, the government does that the authority to reopen the price discussions.

As discussed above, in some instances where the “Sweep” data supports an increase to the negotiated price, an adjustment is often not made to adjust the price upward. As such, “Sweep” data generally inures to the benefit of the government and not to the benefit of the contractor—even when the contractor was unaware of and was unable to get the data until after price agreement. To the extent that “Sweeps” are used to adjust prices down but not up appears to violate the “fair and reasonable” standard that is intended to be equally fair to the government and the contractor.

This and the related questions on “Sweeps” raise important questions that are ripe for further analysis. We appear to be operating in a policy environment without robust data. Perhaps Congress could support a study, to include the following data:

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- What is the average number of days/weeks of delay, and the source of such delays (are the data emanating from subcontractors, the prime contractor)?
- The nature of the updated data
- How often does data from sweeps result in a reduction to the negotiated price? In an increase to the negotiated price?

Dr. GREENWALT. I did not try to identify specific examples of these types of price change adjustments but I would point the Committee to data provided each year by the Defense Contract Audit Agency (DCAA) as it pursues defective pricing audits. Last year (2023) DCAA identified over \$3.5 billion in “savings” and since using

revised cost and pricing data estimates would be one of the easiest types of audits imaginable to conduct, I would expect that DCAA has identified these types of discrepancies in its savings number. Still, the Committee should verify if that is indeed the case. I would also expect that the government has used TINA in some of these cases to obtain a “price adjustment remedy.” Such a remedy could require the contractor to repay DOD a portion of the money it earned on the contract, sometimes with interest applied. The Committee should be able to obtain this information from DCAA or the Department.

6. Senator WARREN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, are contract officers who have accurate cost or pricing data able to negotiate more effectively than contract officers who do not have accurate cost or pricing data?

Mr. LEVINE. In general, access to relevant data is very important to contracting officers who are trying to negotiate fair and reasonable prices. The question whether contracting officers need access to the full range of detail provided by certified cost or pricing data depends on a variety of circumstances, including the extent of competition, the size and type of contract, and the nature of the government’s relationship with the contractor.

Mr. SCHWARTZ. Yes. Both contracting officers and contractors can negotiate more effectively when they have accurate data.

Dr. GREENWALT. This depends on one’s definition of effective and accuracy. Obtaining exactitude in accuracy may not be possible but in the quest to do so will take more time and come at the cost of delaying capability to the warfighter. From a contracting officer perspective revised data may make their job easier from the singular point of view of negotiating a final price with what are seemingly better estimates based on historical data from a specific defense unique contractor. Even this data though will not always be predictive of future supply chain disruptions, labor cost increases, developmental problems, and sector specific inflation. From the government’s perspective whether an updated point in time estimate is worth the costs to update contractors accounting systems which the government will likely pay for in reimbursable overhead is a debatable premise. The other factor to consider is that for these types of contracts the more mandated government unique requirements imposed and procedures to follow there will be fewer contractors willing to bid on contracts which means less competition and innovation for the Government.

COMMERCIALIZATION

7. Senator WARREN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, has DOD made necessary steps to ensure contract officers have accurate and enough information readily available to make commerciality determinations?

Mr. LEVINE. I believe there is more that Congress and the Department can and should do to ensure that contracting officers have the information that they need to make these determinations.

Mr. SCHWARTZ. DOD seems to have generally taken the steps necessary to enable contracting officers to get sufficient information to make a commercial determination but DOD cannot guarantee that the contracting officers have all of the information they need. In some cases, the onus is on the contracting officer to conduct market research to get the data. In other cases, it is incumbent on the contractor to provide sufficient descriptions and information of the items/services to enable the contracting officer to do the market research. Ensuring that contracting officers have access to prior commercial determinations can help speed up the process.

Dr. GREENWALT. The Department has seemingly made commerciality decisions more bureaucratic and time consuming than it should be. That risks driving commercial contractors away from the government market and limiting the types of solutions it could get from the commercial marketplace. Adding more process in the defense marketplace is usually not the best answer. These processes will also bleed into standard practices in non-defense agencies. This will ultimately delay progress in green energy and climate change projects and slow down responses to future pandemics as the contracting process suffers from the same incentive structure imposed upon DOD. Commerciality should be determined through competition and a greater understanding of what the commercial industrial base does and is capable of doing. That type of knowledge gained through market research is often absent in the DOD contracting community.

8. Senator WARREN. Mr. Levine, a 2018 Government Accountability Office (GAO) report found that no comprehensive information-sharing strategy exists within the Department of Defense (DOD) regarding key factors in determining if an item is commercial and reasonably priced. What steps can DOD take to ensure contract offi-

cers have accurate and adequate information readily available to make commerciality determinations?

Mr. LEVINE. The Department could establish better guidance on the types of data that contracting officers should seek and obtain for the purpose of making such determinations. Such guidance might also address the types of data other than cost or pricing data that contracting officers should seek and obtain pursuant to 10 USC Section 3705 in cases where certified cost or pricing data are not required to be submitted.

9. Senator WARREN. Mr. Levine, does requiring cost or pricing data present an insurmountable burden for Department of Defense contractors?

Mr. LEVINE. It does not present an insurmountable burden for traditional defense contractors, who have established systems for collecting and providing such data. It may well present an insurmountable burden for commercial vendors and other non-traditional contractors, who do not have such systems. That is why the Truth in Negotiations Act includes a series of exemptions for such contractors.

MAINTENANCE

10. Senator WARREN. Mr. Schwartz, please describe the benefits of initiatives like predictive maintenance on overall project costs.

Mr. SCHWARTZ. Predictive maintenance can decrease long-term maintenance costs, extend the life of systems, and increase readiness. Predictive maintenance is a commercial best practice that requires:

1. sensors to collect data on system performance,
2. engineering analysis of the collected data to identify imminent or expected material failure, and
3. maintenance actions to replace/fix parts before they fail.

Predictive maintenance and model-based product support help avoid unscheduled or emergency maintenance when a part has failed. This helps readiness by creating a more efficient maintenance process and ensuring more accessibility to necessary parts (and improved parts ordering). It also decreases costs by heading off more expensive maintenance.

In mechanical systems, the failure of one part can lead to damage elsewhere in the system, triggering more extensive maintenance and repair. Conceptually, this is like failing to get your oil checked or changed and continuing to drive. At some point the car will stop (readiness), emergency repair will be required (increased cost for the specific problem), and other repairs might be necessary (additional increased cost due to the consequence of failure on other parts of the system).

Effective predictive maintenance is more than just gathering the right data: it requires analyzing the data, acting on the analysis, and configuring maintenance processes to maximize the efficiency of maintenance. For example, waiting until the platform comes to the depot to order the necessary part will undermine the value of predictive maintenance. This is where budgets come into play. Too often maintenance is a bill payer, saving money in the short term but increasing costs in the long term. Effective predictive maintenance requires the upfront investment in the sensors, maintaining an analytical capability for the data gathered, and funding spare parts and maintenance activities to ensure that the right maintenance is conducted contemporaneously with the analysis.

11. Senator WARREN. Mr. Schwartz, please describe how initiatives like predictive maintenance would be best implemented at the Department of Defense.

Mr. SCHWARTZ. Fund the up-front investment in technology (e.g. sensors) and spare parts/maintenance capability and efficiency. If, due to backlogs or shortages of parts, it takes weeks or months to get platforms through maintenance facilities, the value of predictive maintenance is significantly diminished.

Establish DOD-wide policies that deem a part identified as failing by a predictive maintenance tool as an "unserviceable" part. This would eliminate the gray area in maintenance test procedures where a part that is identified through predictive maintenance tests as working and may be kept into the platform until failure.

Foster a culture that readiness is the business of the acquisition workforce. It is not just about production, production, production. It is ultimately about a right-sized and ready force. Neither production/acquisition nor maintenance alone will get us there. It is about both working hand in hand to optimize size and readiness of the fighting force.

12. Senator WARREN. Mr. Schwartz, what, if any, other initiatives can the Department of Defense employ to ensure contract officers are considering operations and maintenance cost during the acquisition phase?

Mr. SCHWARTZ. Currently, a greater emphasis is placed on cost and schedule of production over long-term operations and sustainment lifecycle costs. Well-intentioned statutes like the Nunn-McCurdy Act incentivize program managers to avoid an acquisition cost breach, even at the expense of driving up even great sustainment costs.

Part of this stems from the budget process and program manager tenures. Program managers in the acquisition phase execute RDT&E and Procurement funding. O&M funding for sustainment is viewed as someone else's money and someone else's problem, a distant thought that only comes to a head years after the program manager has moved on.

Currently, there is little visibility on the materiel readiness requirement for the fleets. Section 118 of the Fiscal Year 2024 NDAA requires the Service Secretary to establish materiel readiness metrics for each weapon system and to provide estimates for maintenance funding to achieve those metrics and requires a 5-year look at the maintenance estimates. Implementing section 118 and the related recommendations of the PPBE commission could help improve planning and budgeting for sustainment requirements.

Other initiatives could include applying Nunn-McCurdy-Type reporting requirements to O&S Costs. As CRS report suggested Congress may consider applying Nunn-McCurdy-type reporting requirements to O&S costs. Applying a reporting requirement to O&S costs might help Congress set its budgetary priorities, as well as gather and track cost data for future analysis. Another option for Congress could be to require the Cost Assessment and Program Evaluation office to include in its annual report to Congress a comparison of original O&S cost estimates to current actual costs (adjusted for inflation) for ongoing programs.²

QUESTIONS SUBMITTED BY SENATOR DAN SULLIVAN

LONGER-TERM CONTRACTS & DEFENSE INDUSTRY STABILITY

13. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, the recently released report from the Commission on Planning, Programming, Budgeting, and Execution (PPBE) Reform cited that several of our allies and partners use contracts that are even longer term than our maximum five or 6 year multi-year procurement contracts that are often used for shipbuilding, for example. Specifically, the report said, "The Commission also learned about examples of allied countries using mechanisms for longer-term (10 years) industry signaling such as Australia's Integrated Investment Program and Defence Industrial Capability Plan and Canada's Defence Investment Plan and Defence Capabilities Blueprint, which provide long-term plans and goals for investment in the industrial base." Can you describe the optimal structure of contract lengths and funding availability to induce industry to make capacity and capability investments?

Mr. LEVINE. In general, the commitment made to industry by longer-term contracts should help industry plan future investments. However, long-term contracts also undermine the Department's flexibility to adjust to changed circumstances. For example, it may become more difficult for the Department to pivot to innovative products and new technologies if funds are tied up on existing programs. Long-term contracts may also limit the ability of new Administrations and new Congresses to change course from their predecessors and establish new priorities. Balancing signals to industry against needed flexibility and congressional prerogatives has always been difficult, but in my view, the existing statutory structure provides an appropriate framework for such decisions.

Mr. SCHWARTZ. Long-term and multi-year contracts can signal demand, incentivize contractors to more aggressively bid for contracts, encourage contractors to invest in contract performance through capital expenditures or IT investments, allow contractors to better manage their workforce, and facilitate prime contractors to get more favorable pricing from subcontractors for long-term contracts. The predictability and stability offered by such contracts (which is often more important than a slightly higher profit margin) are motivators for industry and essential to building and maintaining efficient supply chains.

² Congressional Research Service, *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress*, May 12, 2016.

But longer-term contracts are not a one-size-fits-all that benefit DOD in all circumstances. Locking in long-term contracts can run the risk of contractor complacency and vendor lock. Facility contracts are ripe for long-term contracts, supplying commodities, less so (although sometimes here too they can be useful). Factors in determining the effectiveness of long-term contracts depend on some DOD internal requirements, such as having quality contract oversight and a willingness of the government to terminate contracts for subpar performance (adding both a carrot and stick approach to long-term contracts).

Identifying the optimal period and funding profile for contracts depends on a variety of other factors unique to the good or service being acquired, including price stability in the marketplace, investment requirements, stability of demand, and oversight capabilities. Such decisions are best left to the workforce closest to the contract and responsible for execution and performance management. Granting authority to the acquisition workforce to make such decisions could enable more effective contracting.

Dr. GREENWALT. The answer is as long as it takes to get a market return on a company's up-front investment. This will be a case-by-case decision based on the specifics of the financial condition of the contractor and what is being developed. One does not need to look to our allies for examples of longer-term contracts than DOD's current multiyear authority. Energy Savings Performance Contracts (a provision in US law to incentive energy savings at US government facilities) offer terms of up to 25 years for companies to recoup their investment. Congress has made a decision to allow for longer contracting terms for green energy savings investments but has not supported doing so to achieve multiyear savings or to incentivize private sector investment in defense. That perhaps is a debate worth having. The recently released report from the Commission on Planning, Programming, Budgeting, and Execution (PPBE) Reform cited that several of our allies and partners use contracts that are even longer term than our maximum 5 or 6 year multi-year procurement contracts that are often used for shipbuilding, for example. Specifically, the report said, "The Commission also learned about examples of allied countries using mechanisms for longer-term (10 years) industry signaling such as Australia's Integrated Investment Program and Defence Industrial Capability Plan and Canada's Defence Investment Plan and Defence Capabilities Blueprint, which provide long-term plans and goals for investment in the industrial base." Can you describe the optimal structure of contract lengths and funding availability to induce industry to make capacity and capability investments?

Please see the response above.

PITFALLS OF CONTRACTING RELATED TO SOFTWARE

14. Senator SULLIVAN. Mr. Levine, the Fiscal Year 2019 National Defense Authorization Act (NDAA) had a provision requiring the Government Accountability Office (GAO) to assess information technology (IT) programs annually through 2023. Unsurprisingly, one of the findings is that Department of Defense does not use the latest versions of commercially available software. Are there any acquisition pathways or contracting authorities already in place that are optimal for keeping systems updated with the latest software iterations?

Mr. LEVINE. I believe that the software acquisition pathway provides an appropriate first step toward enabling the government to engage in agile software acquisition. However, more could be done, in particular, by: (1) adopting the recommendation of the PPBE Commission to increase the Department's flexibility in the use of software funding; and (2) adopting the rapid contracting mechanism proposed by the Defense Innovation Board in its final report on Software Acquisition and Practices. It is important to note, however, that some of the difficulties the Department has in adopting commercially available software are shared by commercial entities, while others are due to the unique needs of the Department. For example, changes to law and policy will not remove the inherent difficulty of adopting commercial business systems to automate unique defense business processes.

15. Senator SULLIVAN. Mr. Levine and Dr. Greenwalt, recognizing the importance of keeping systems hardened from cyber-attack, are there changes you would recommend to software acquisition pathways to ensure information systems and weapons systems are updated with the latest software available?

Mr. LEVINE. I believe that the Department has struggled with this issue because the imposition of DOD-unique cyber requirements sometimes runs contrary to the effort to rapidly field the latest software developed in the commercial marketplace. In the long run, I believe we will be most successful if we can persuade software

developers to build cyber protections into their products on the front-end, so that the Department does not have to require changes on the back-end.

Dr. GREENWALT. This is always going to be a challenge as cyber and electronic warfare will be a continuing, and constantly evolving threat to all defense and commercial systems. DOD needs to be capable of being agile enough to protect its systems. Our lumbering, risk averse, linear, command and control, acquisition and budgeting model that is grounded on predicting the unpredictable is in no way prepared to deal with current cyber threats let alone the cyber threats of the future that will be enabled by advances in AI and quantum technologies.

The only path forward is to run faster, cheaper, and better. That requires agile acquisition, contracting, and budgeting practices that leverage the commercial market. The Department and Congress needs to understand that software is never done and will constantly evolve and change. Our system predicated on programs that begin and end do not comport with this reality. The commercial market seems to have a better understanding of this but DOD continues to be decades behind that market both in technology and management practices. DOD needs to embrace these changes and modify its acquisition and budgeting practice to accommodate continuous updates of software on its systems not just to meet cyber security needs but also operational ones.

DEFENSE ACQUISITION PROFESSIONALS

16. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, a July 27, 2021 GAO report found that Department of Defense acquisition professionals across all services largely do not collaborate with internal stakeholders and end-users when developing performance metrics nor do procurement leaders use outcome-oriented performance metrics to manage their organizations. What are specific ways to encourage acquisition professionals to use the practices I just mentioned, which are considered best practices across industry professionals?

Mr. LEVINE. I agree that the Department has failed to develop effective outcome-oriented performance metrics for the acquisition system. In my view, however, this is a result of the complexity of the system and the difficulty of the problem, rather than any failure on the part of DOD officials.

Acquisition professionals have been frustrated for decades by the difficulty of developing relevant outcome-oriented performance metrics for the defense acquisition system. The ultimate measure of success for the defense acquisition system is whether the products and services that we acquire successfully deter our adversaries and contribute to success on the battlefield. Unlike the profit and loss calculations of private companies, these outcomes are largely unknowable until years after an acquisition has been completed and a system has been fielded, if then.

DOD leaders, Congress, and the public rightly do not want to wait for years, or decades, for an appraisal of the success of the acquisition system, so we rely on surrogate measures, such as a comparison of program cost, schedule, and performance to a program baseline—basically, a prediction of how we expect an acquisition to go—and testing to assess system performance on an ongoing basis. None of these are real outcome measures.

Moreover, because of the vast range of products and services acquired by the Department, even these surrogate measures for outcomes tend to be difficult to aggregate. Indeed, we have had decades of academic debate on basic issues such as whether, in the aggregate, major weapons systems are subject to more cost growth, or take longer to develop, than in the past. These disputes remain largely unresolved. As a result, the aggregate acquisition measures demanded by Congress and used by senior managers tend to be even less meaningful—numbers like percentage of competitive awards, and dollars awarded to small businesses. These are process metrics that help guide the acquisition system, but they do not reflect the ultimate outcomes sought by the system.

Mr. SCHWARTZ. Both issues—collaborating with internal stakeholders and using outcome-oriented performance metrics—are outgrowths of a larger workforce challenge within the Department of Defense. DOD has a culture problem. In particular, it has a culture of compliance problem, which relates directly to how it conducts performance metrics. But the workforce challenges are much deeper, running from the hiring process to workforce management. DOD's acquisition workforce has also lost technical expertise, making it more difficult to effectively manage the 'technical baseline' of programs. Addressing these issues requires a more comprehensive, far-reaching effort than can be succinctly articulated here.

Dr. GREENWALT. An unintended consequence of the Goldwater Nichols Act of 1986 has been to create a divide between the acquirers of military capabilities and its users in the combatant commands. As GAO has found the acquisition community

measures itself on process not outcomes. The acquisition community has been incentivized to do a lot of things, many of which do not support the warfighter. Congress attempted to bridge this gap by trying to bring the service chiefs back into the acquisition process in section 802 of the 2016 NDAA to help develop a customer-oriented acquisition system. This has been a failure as the service chiefs have done a poor job of representing the customers residing in the combatant commands. One solution is to give the combatant commanders acquisition authority and build systems and capabilities that work for them. Other options to consider are to have the combatant commanders rate the acquisition community and have pay levels and job opportunities tied to those ratings, and to become more formally involved in the development of department performance measures and near-term requirements.

17. Senator SULLIVAN. Mr. Levine and Dr. Greenwalt, the current acquisition workforce is almost 200,000 people. Given the modern technologies like artificial intelligence and machine learning that can make workflow more efficient, do you think the defense acquisition workforce is over, under, or appropriately sized to meet the Department's needs?

Mr. LEVINE. An acquisition workforce of 200,000 sounds large, but the Department spends almost a half a trillion dollars a year on products and services, or more than \$2 million for every person in the acquisition workforce. That workforce covers the full range of acquisition functions, from processing purchase requests to developing new technologies for electronic warfare and testing warships for survivability in combat.

We have no benchmark for determining whether the current workforce is too large, too small, or appropriately sized. However, numerous studies have documented the fact that previous efforts to save money through drastic cuts to the acquisition workforce—mostly in the 1990s and early 2000s—were counterproductive and led to failed acquisitions, increased costs, and an overall deterioration in acquisition system performance.

Dr. GREENWALT. Given the level of bureaucracy and mandated compliance requirements in the acquisition system there will probably never be enough personnel to do what the executive branch and Congress is asking the acquisition workforce to do. That does not mean the acquisition workforce is undersized, it is just doing the wrong things. There is a need to conduct a smart deregulation of the acquisition system as well as a long-term skill set evolution and rebalancing to address changes that are occurring in the economy and the industrial base that are impacting how the Department can access the technologies and private sector capabilities that currently exist and will exist in the future.

18. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, the acquisition workforce gets its training primarily from Defense Acquisition University (DAU) and focuses primarily on compliance with the regulatory processes rather than taking risk to innovate. What can Congress do to help the workforce utilize all the authorities they have?

Mr. LEVINE. Over the last decade, the Department has made significant changes in the way that it trains the acquisition workforce, authorizing outside institutions to conduct some training, and seeking to make organic training less compliance-driven in nature. As a part of this effort, DAU has made major changes to its curriculum and its overall approach to instruction. However, I am not well-informed to assess the extent to which this effort has been successful.

Mr. SCHWARTZ. There have been numerous commissions and task forces on improving aspects of the Department of Defense acquisition system, including the Section 809 Panel on Streamlining and Codifying Acquisition Regulations; Commission on Wartime Contracting in Iraq and Afghanistan; and PPBE Reform Commission, to name a few. Congress is also considering establishing a commission on requirements reform. I am not aware of any similar commission on workforce. Yet workforce is the single most important factor for successful acquisition outcomes. As a CRS report analyzing the history of acquisition reform stated:

Despite the hundreds of recommendations to improve defense acquisitions, most reports seeking to address the fundamental weaknesses of the system arrive at the same conclusion: the key to good acquisitions is having a good workforce and giving them the resources, incentives, and authority to do their job.³

³ Congressional Research Service, *Defense Acquisition Reform: Background, Analysis, and Issues for Congress*, May 2014

Perhaps it is time to create a commission or panel to explore workforce issues in the Department of Defense, with a focus on the acquisition workforce. In creating such a panel, it would be ideal to ensure that a significant number of the members of such a panel are experts in education and workforce training, drawn more from academia and industry than from DOD or the Federal Government.

Dr. GREENWALT. DAU is a backward looking organization as are many of our acquisition laws and regulations. DAU helps the current acquisition workforce comply with the many often conflicting mandates imposed on defense acquisition. It has specialized in the more traditional acquisition process that is out of touch with the way technology is currently being developed around the globe. This is both a leadership and curriculum issue. If DAU leadership or the curriculum does not change then Congress should consider other alternatives to train the acquisition workforce of the future. Moving a percentage of DAU's budget to public universities, the War Colleges, or the private sector to provide training that addresses speed to capability to the warfighter should perhaps provide enough incentives for change to happen at DAU.

19. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, are curriculum changes needed at Defense Acquisition University to institutionalize taking smart risks to innovate vs regulatory compliance?

Mr. LEVINE. DAU has already made significant changes to its curriculum in an effort to address issues of this kind. However, I am not well-enough informed to assess the extent to which this effort has been successful.

Mr. SCHWARTZ. Yes.

Dr. GREENWALT. Absolutely. The creation of the Adaptive Acquisition Pathway framework—which was mandated by Congress in the section 805 of the Fiscal Year 2016 NDAA and incorporated Rapid Acquisition, Middle Tier Acquisition authority and the software pathway all need to be better emphasized in current acquisition training. Courses on OTAs have long been inadequate particularly so since Congress created production OTA authority. A top-down reorganization of the curriculum at DOD is vitally needed. Congress may want to consider GAO or another independent body to review DAU's effectiveness and how DAWIA could be changed to better align with the acquisition system that will be needed in the future. Finally, curriculum changes should also be considered at the service academies and the War Colleges to ensure that military leaders have an understanding of how the capitalist system actually works and how to better incentive the industrial base to meet military needs.

OTHER TRANSACTION CONSORTIA

20. Senator SULLIVAN. Mr. Schwartz, please provide a list of your findings on Other Transactions consortia and whether they lower the barrier to entry for non-traditional defense contractors.

Mr. SCHWARTZ. Other Transactions not only lower the barrier to entry for non-traditional defense contractors, but they can also expedite acquisitions, expand the market, and improve requirements development. The full analysis can be found in the report *The Power of Many: Leveraging Consortia to Promote Innovation, Expand the Defense Industrial Base, and Accelerate Acquisition*. Some findings include that Other Transactions can:

- expand the Defense Industrial Base, enhancing small business and nontraditional contractor participation in the defense industrial base,
- promote innovation,
- improve communication between DOD and industry,
- provide surge capacity,
- and accelerate acquisition.

However, these results only work if Other Transactions are used currently, when appropriate, and by a prepared and skilled workforce.

21. Senator SULLIVAN. Dr. Greenwalt, I have heard that Other Transactions prototypes often transition into production not through a sole-source Other Transaction follow on, but rather a Federal Acquisition Regulation-based contract. What can we do to grow the use of this production authority for Other Transactions?

Dr. GREENWALT. The acquisition workforce is still too risk-averse to take advantage of the authorities it has been given by Congress. This of course will limit those types of companies who will want to bid on prototype OTAs in the first place. If the price of success in defense acquisition is to adopt a TINA-CAS compliance system that will destroy a firm's underlying innovation culture these companies will just

not do business with DOD. It is that simple and China will gain access to better technology in the commercial market than DOD ever will as US companies continue to specialize in commercial operations. Congress can play a role through oversight by asking questions and forcing DOD to justify its decision every time a FAR based OTA transition occurs. It could also put in place processes to disincentivize FAR based follow ons—either through a high level of certification (say at the Secretary of Defense level) to do so or to impose dollar limits on FAR based transitions and none on OTA production transition. Finally, it could use its control over the budget and not fund FAR based transitions with non-traditional contractors.

INTERNATIONAL SALES AND COOPERATION

22. Senator SULLIVAN. Dr. Greenwalt, many of our allies and partners are capable of designing and producing—and in fact already have—weapons systems and platforms that we could use. Are there specific International Traffic in Arms Regulations (ITAR) changes that you can recommend that would allow for increased allied and partner arms imports?

Dr. GREENWALT. In my May 2023 report “Breaking the Barriers: Reforming US Export Controls to Realize the Potential of AUKUS” I outline 8 deadly sins of ITAR. These are an outdated mindset; universality and non-materiality; extraterritoriality; anti-discrimination; transactional process-compliance; knowledge taint; non-reciprocity; and unwarranted predictability. The most significant one is knowledge taint or the contamination of our ally’s intellectual property when it comes into contact with US technology or knowledge. This combined with an extraterritorial application is also known as the “ITAR taint” and removing it is critical to co-development of technology with our allies. I have outlined several options for Congress to address this problem within AUKUS (which could serve as a test case for future reform with other allies) in the above report’s annex section on “Proposals for executive branch and congressional Action to Reform ITAR for AUKUS Countries.” The most significant of these reforms would be to address knowledge and services provided by our allies in a way that the ITAR taint does not apply.

PPBE REFORM COMMISSION FINDINGS

23. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, what is your assessment of the PPBE Reform Commissions findings and recommendations?

Mr. LEVINE. The findings and recommendations of the PPBE Commission were unanimously approved by the Commission after months of deliberation. As a Member of the Commission, I voted for, and support, all of the recommendations. In my view, the adoption of these recommendations would significantly streamline the Department’s processes and enhance its ability to respond quickly to new challenges and new opportunities (including new technologies).

Mr. SCHWARTZ. I support the recommendations of the PPBE Reform Commission.

Dr. GREENWALT. The PPBE Commission is a good first effort but is frankly minimalist in its recommendations. Much more needs to be done to provide greater funding flexibility to support portfolio acquisition and provide speed to capability to the warfighter. That even this minimalist approach is proving difficult to implement is disheartening and perilous given the growing threats to our Nation. Perhaps a more relevant report for the Committee to consider was one of the supporting reports that RAND conducted for the PPBE Commission that compared DOD’s budgeting system with the rest of the US government. In this RAND report there are many flexibilities identified that other agencies have that DOD does not. That the Reform Commission thought it politically inexpedient to consider those flexibilities is unfortunate but that does not mean that Congress should not consider the implications of the RAND report’s findings.

24. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, are there additional recommendations you would make specific to acquisition?

Mr. LEVINE. I believe that the Commission recommendations effectively address the most important acquisition-related aspects of the PPBE system.

Mr. SCHWARTZ. Rebuild the skills possessed by the acquisition workforce to better manage programs by holding the technical baseline in engineering and technology.

Dr. GREENWALT. I would argue for harmonization and parity between other agencies budget flexibilities and DOD taking the RAND report as a roadmap of how to bring these types of flexibilities to DOD. Adopting NASA’s mission and 2-year appropriations authority, HHS no-year, multiyear, and non-recurring expense authorities, DHS’ carryover authority of unobligated balance, the VA’s advance appropriations and no-year funding authority, and others are examples where legal precedents are in place that should be considered for DOD that would radically speed

defense acquisition. Congress should also provide access to expiring and funds destined to be canceled to be applied to urgent operational needs and capabilities. GAO recently identified up to \$25 billion a year that goes unspent in the Department's budget and is ultimately canceled each year. That money could buy a lot of munitions, unmanned systems, ships, armored vehicles and aircraft but now goes wasted. Finally, Congress and the Department should focus more on creating a system to support portfolio budgeting and acquisition as my colleague Dan Patt and I outlined in the report "Competing in Time: Ensuring Capability Advantage and Mission Success through Adaptable Resource Allocation".

25. Senator SULLIVAN. Mr. Levine, Mr. Schwartz, and Dr. Greenwalt, the reform commission recommended an implementation team that reports directly to the Deputy Secretary of Defense. How would you implement the recommendations into the acquisition workforce, particularly with reference to curricula changes at DAU?

Mr. LEVINE. I understand that the Deputy Secretary has established an implementation team and directed the implementation of all recommendations of the Commission that fall under her authority (i.e., those that do not require action by Congress). The Deputy Secretary has full authority to implement recommendations related to the acquisition workforce and DAU. In practice, however, changes to the DAU curriculum will require deep understanding of the existing curriculum, the changes already made by DAU, and the resources required to undertake a new approach, among other issues.

Mr. SCHWARTZ. There are multiple ways to leverage DAU to implement the recommendations of the PPBE Commission. In getting early buy-in/early education and rolling out full implementation of the recommendations DAU can:

- Create a messaging campaign, along the lines of 'Make Budgeting a Catalyst, Not an Obstacle' to spread the word, build enthusiasm, and gain support.
- Leverage the existing Hot Topics series and other venues to hold conversations with senior officials to discuss implementation and what it means for the defense acquisition workforce, with a focus on speeding up the process, adding flexibility, and improving efficiency. Such Hot Topics types of efforts are critical to getting buy-in from the workforce and raising the visibility of implementation.
- Develop on demand 5–15 minutes training modules that allow the workforce to quickly get up to speed on various implementations, by topic or issue.
- Incorporate and update implementation into existing curricula.

Dr. GREENWALT. The Deputy Secretary must hold the Undersecretary of Defense for A&S accountable for the changes required to be made at DAU. As Peter Drucker once stated "what gets measured gets managed." Along those lines the Department needs to translate tangible recommendations into achievable performance measures. The DAU President should be responsible for achieving those measures but ultimately it is A&S and the DEPSECDEF who have to be held accountable by Congress for execution.

